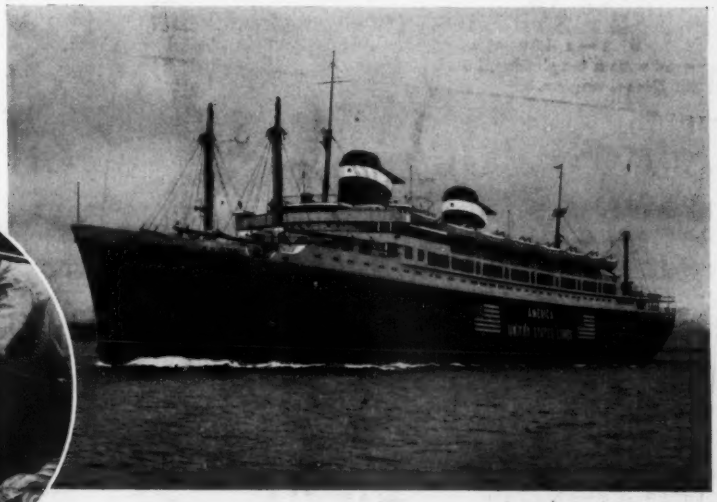
ATLANTIC FISHERMAN

Registered U. S. Patent Office

VOL. XXI SEPTEMBER, 1940 NO. 8

Famous Fleets that COUNT ON COLUMBIAN . . . . .

UNITED STATES LINES



Left: *The new liner S. S. America uses Columbian Manila Rope.*

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Tarpon Springs, Fla.
December 24th, 1939

The National Supply Company
Superior Engine Division
Philadelphia, Pa.

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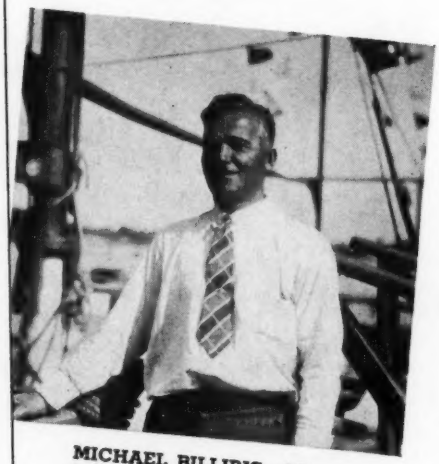
Very truly yours,
Michael Billiris



MICHAEL BILLIRIS, of Tarpon Springs, Fla., owner and captain of the ST. NICHOLAS II.

★ ★

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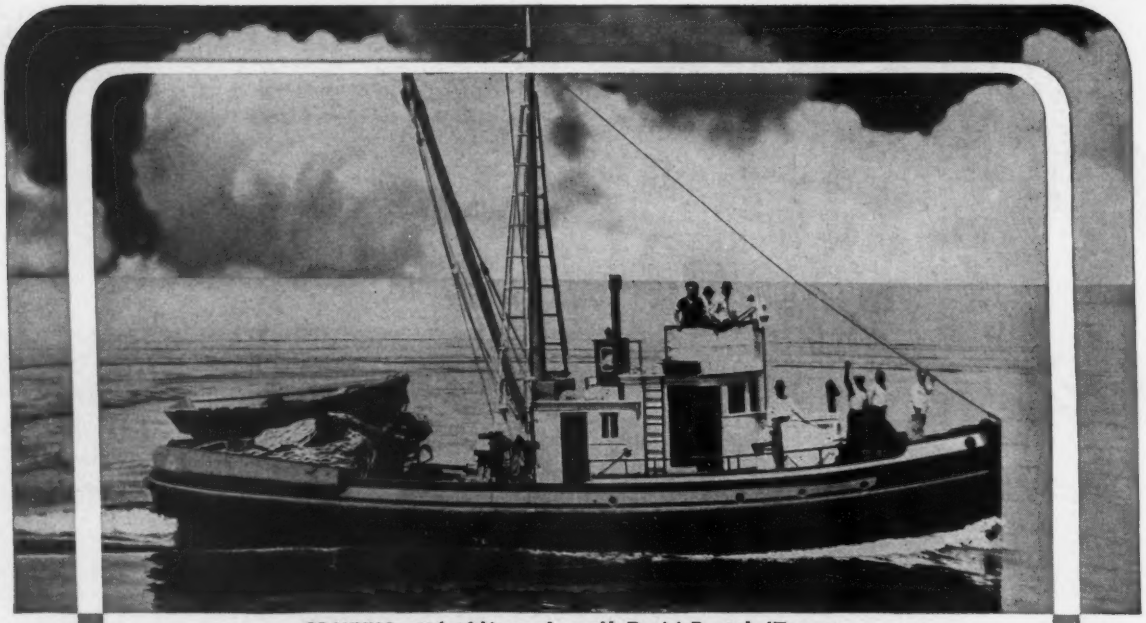

GRAYLING, *a 53 foot fishing vessel, owned by Dominic Baretech of Tacoma—built at Gig Harbor, Washington. Equipped with* Willard Marine Batteries.

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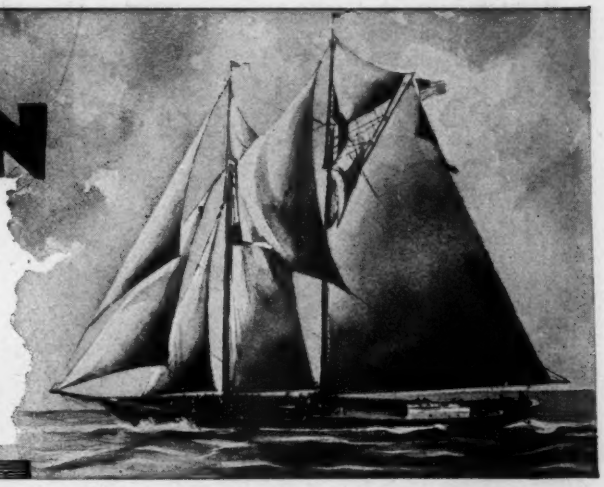
Willard Marine Batteries

ATLANTIC FISHERMAN



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VOL. XXI SEPTEMBER 1940 NO. 8

The Oyster Always Has Been an Object of Esteem

Of ancient ancestry, and the motive of yearly ceremonials, it symbolizes important industry

WITH the advent of September, first of the Fall "r" months, gears of the $30,000,000 oyster industry again began to grind on September 3, the date of the official Washington opening of the season.

Heralding the annual celebration was the arrival from New York of Howard W. Beach, President of the Oyster Growers and Dealers Association, at the Washington Airport, at 9:30 a.m., on Tuesday morning. He was met at his plane by Dr. Lewis Radcliffe, Director of the Oyster Institute of North America, and officials of the Fish and Wildlife Service, United States Department of the Interior.

Following this, at 10:30, Beach presented a gift of half a hundred pedigreed Long Island blue-points, fresh dredged from their New York beds that morning, to the White House.

To Secretary of the Interior Harold L. Ickes, also, Beach conveyed, with the compliments of the 60,000 persons employed in the industry in the United States, a tray of selected oysters. This presentation, which was a private one at 11:30, was made with the assistance of Radcliffe, in the interests of the Secretary's sincere and continuing efforts through the Fish and Wildlife Service in the direction of conservation.

The morning's ceremony continued in the Department of the Interior cafeteria sharply at 12:30, noon, where Under Secretary of the Interior Alvin Wirtz, formerly of Texas (whose oyster beds are renowned throughout the South and Southwest) presided. He there presented to invited newspapermen and officials, and certain noted Washington trenchermen, several barrels of oysters shipped in for the occasion. Sandwiches, crackers, condiments, and coffee also were served.

These ceremonies were observed in an effort to provide Americans with some idea of a similar 900-year old ritual, perpetuated annually at Colchester, England.

In England each year there is held, and has been from time immemorial, the time-honored ceremonial of declaring open for the season the Colne Oyster Fishery within the province of the Colchester Corporation. The mayor and municipal colleagues of Colchester and members of the Colne Fishery Board, which manages the fishery, make a tour of the grounds, followed by a quaint ceremony which includes the reading of the ancient documents relating to the grant of the fishery to the Corporation, the dispatch of a telegram to the King, intimating that according to ancient custom and charter of over 900 years, the fishery had been opened for the season and that the officials are drinking to the King's health. This is accomplished with gin to the accompaniment of the consumption of squares of gingerbread. Each year the group is addressed by some distinguished guest. The party, on an oyster vessel, make a sample dredge—first of the season—and always the best ever.

Twenty to thirty centuries ago, the Chinese and Japanese were engaged in crude forms of oyster farming. By 100 B.C. Roman aristocrats who were very fond of oysters had set up salt-water tanks in their villas in which to hold oysters fresh for their tables. The pages of ancient history are dotted with references to the popularity of oysters and efforts to supplement the natural supply by artificial cultivation.

The first American Colonists found an abundance of oysters as far north as the coast of Maine. However, the beds north of Cape Cod early showed signs of exhaustion and by 1775 the native stock had practically disappeared from these waters. By 1840, even the more productive areas along the shores of Rhode Island, Connecticut, and New York showed signs of exhaustion and laws intended to conserve the supply were enacted.

In March 1835, a schooner laden with Virginia oysters arrived in Connecticut waters too late for that season's market. Rather than lose the cargo, the owners dumped the oysters overboard in a cove near New Haven. The following autumn it was discovered that these oysters had increased at least a third in size and were of most excellent flavor. This accident resulted in the bringing of thousands of bushels of oysters from the Chesapeake by schooner every Spring to supplement local stocks. This was one of the earliest steps leading to the development of oyster farming in American waters.

In the Summer of 1862, Captain deBroca of the French Navy, acting under orders of Emperor Napoleon III, visited the United States for a study of our oyster industry. During this visit the Captain suggested the laying of old shells and brush on the oyster beds to serve as "cultch"—a hard, clean surface to which the tiny free swimming oyster larvae could attach without being submerged in soft mud and killed. Thus the volume of production of seed oysters could be greatly increased. A local resident who had the temerity to try this procedure was called a lunatic for following the suggestion of a "frog-eating Frenchman who had the cheek to come to New Haven and teach our oystermen how to grow oysters." Nevertheless, this innovation opened the way to further improvements, leading to the large-scale production of seed oysters which had culminated in the extensive oyster farming operations of the present day.

Maine crabs from car to can: Upper left: Ralph K. Barter, operator of new crabmeat canning plant at Stonington, Me., inspects the finished product. Upper center: crabs just out of the water. Upper right: Clyde Cole dipping crabs from the storage car. Lower left: washing picked crabmeat in special solution. Lower center: packing crabmeat in parchment-lined cans. Lower right: sealing cans in the closing machine. Photos by Dick Reed.

Barter Successfully Cans Maine Crabmeat

By Dick Reed

CONFIDENT that he has a packing process which has overcome all obstacles previously confronting canners of Maine crabmeat, Ralph K. Barter of Stonington has gone into this business on a big scale and is packing several thousand cases during the Summer and Fall seasons. Getting his supply of the crustaceans mostly from the lobster fishermen, Barter is not only providing additional income to this group but is giving work to at least 50 persons in his factory on the old Eastern Steamship wharf.

Having great hopes for the future of his new enterprise, Barter believes that eventually he will employ up to 100 in the crabmeat plant. His biggest job, he admits, is to introduce the new product on the market but test shipments to leading brokers all over the country are bringing repeat orders and enthusiastic reports.

Preceded by Research

There have been several other crabmeat packing attempts along the Maine coast in the past but none has seemed to pan out very well. Fully aware of this, Barter has been experimenting for two years and solicited the help of some of the leading universities in the East. Early in June he perfected his process and went to work. Those who have tried the product claim that it is in many ways superior to the Japanese and California varieties in that it is sweeter, boneless and has a more distinctive taste.

At the present time the factory is using all of the crabs that it can get and fishermen are finding the additional income very helpful. The price is averaging about a half a cent a crab but it is indicated that this might be increased if the product does find a spot for itself in the national market.

The packing season is an eight-month proposition running from April to December. It is necessary for crab fishermen to have a license but in case they also catch lobsters, their lobster permit will cover both species.

Packing Process

The crabs are stored in lobster cars at the factory wharf until ready for canning. They are steamed in retorts, the meat picked out by women who work on a poundage basis, and then carefully washed and cleaned. The meat is packed in American Can Co. cans, which are lined with Kalamazoo parchment paper. The cans are sealed in a Canco closing machine. The finished product carries a Deer Isle Brand label.

The key to the success of the canning process is the lining in the cans and a fluid which goes into each. The fluid not only protects the meat from any physical changes, but adds to its flavor. Barter is continuously experimenting and believes that he is improving his product daily. Although his investment is running fairly high, especially in the stock he is acquiring for the time the market really opens, he is most optimistic. He says that the product will sell as low as the Japanese and California varieties.

Maine crabs are much smaller than the Pacific coast variety but the meat is said to be much more tender and sweeter, and some prefer it to lobster. There are countless millions of crabs along the coast and for the most part lobster fishermen who catch dozens of them in their traps have been throwing them back because of lack of a market. The fresh crabmeat business along the coast prospers in the Summer season but never enough to take care of one percent of the crabs that are caught.

Barter has a big lobster business at Stonington and handles fish and scallops. He also runs several seiners and weirs, packs clams and has several enormous lobster pounds.

The Vessel Refrigeration of Pacific Tuna Fish

H. G. Godsil reports the findings of refrigeration research by the California State Fisheries Laboratory.

CONTINUING the refrigeration work started last year, the *N. B. Scofield* made a second, extended tuna trip last Spring, leaving San Pedro March 13, and returning on May 20, 1940. The refrigeration intent on this trip was to bring in two wells of fish, one at 20 degrees F. and the other at 25 degrees F., and to sample the quality of these fish by various means at regular intervals. From the report of this trip the following information has been compiled.

1. Maintenance of temperature in brine:

We had no difficulty in maintaining a constant and uniform temperature in the brine. The 2 wells used were operated independently, the brine from each flowing through separate coolers maintained at different temperatures. One cooler was operated manually, the desired temperature being maintained by manipulation of the expansion valve, admitting more or less liquid ammonia to meet the varying load. The temperature in the second cooler was maintained by means of a back-pressure regulator. The manually operated—and constantly watched—cooler gave a smoother, more uniform temperature chart, with slight, slow fluctuations about the desired temperature as a mean. The record from the second cooler, controlled by the back-pressure regulator, is characterized by wider and sharper fluctuations, with the desired temperature as a minimum rather than a mean. The point to be made is that a back-pressure regulator on the brine coolers is highly desirable because it minimizes the chance of freezing the coolers: but when used, the regulator should be set to operate about 2 to 3 degrees below the desired temperature so that this will actually be the mean instead of the minimum temperature.

Regarding uniformity of temperature within the brine, the results of this trip show that temperatures taken simultaneously at various points within the well were identical, rarely differing by more than 1 degree. Provided that the volume of brine circulated is adequate and the brine outlets within the tank properly placed, I believe that uniformity of temperature in the brine is assured.

2. Storage factors in Brine:

A. Chafing: On the past trip the chafing of fish in brine was the source of constant worry. The specific gravity of fresh tuna is only slightly greater than that of normal sea-water. In consequence, when salt is added to sea-water, increasing its density, tuna will inevitably float. A vessel at sea is never still, and the motion of the boat is transmitted as actual or relative motion to everything aboard. Tuna floating in brine will (unless the well or tank is filled solidly with fish in brine) therefore be in constant motion, and the extent of this motion will depend upon, (1) the degree of motion of the boat, and (2) the level of brine in the well. With the well filled with brine into the coaming, there is little relative motion in the floating fish, but movement is not absent, and there is enough over a period of time to cause a noticeable deterioration in the appearance, and presumably the quality, of the fish. Under adverse weather conditions the motion is increased and the deterioration hastened. In the case of a well or tank only partly filled with brine, and the partial load floating, the motion there is slight to excessive, depending upon the weather. A few hours of heavy seas will ruin the entire load in such a well. From this we can conclude that: (1) Fish should never be carried in a well or tank only partly filled with brine; and conversely, (2) when it is necessary or desirable to chill small catches of tuna in brine, the well or tank used should be filled completely (with the level well into the coaming) with brine, irrespective of the amount of fish to be store therein.

B. Salt penetration: It was learned on this trip that the penetration of salt from the brine into the tissues was far more noticeable and pronounced in the raw than in the cooked fish. Whereas the Board of Health inspector at the time of unloading noted that the bulk of our load "showed considerable salt penetration from ⅛ in. to ¼ in. deep . .", our own observations on the raw fish, substantiated by photographs on file, indicate that the "pickling" effect of the salt on the tissues extends inwards about 1¼ inches from the surface, in fish stored for 34 days in 20 degrees F. brine, and about an equal amount in fish stored in 25 degrees F. brine for 27 days. Moreover, the effect was equally pronounced in a few fish that had been hard-frozen on the coils before placing in brine as in those dumped fresh, directly into brine. That this salt apparently leaches out during the cook and does not prejudice the pack is fortunate; nevertheless the effects of this concentration for the duration of storage are bound to change the nature of the proteins in the meat, and to this extent brine storage must detract from the "freshness" of the fish.

Another effect of the brine is the depression of the freezing point of the tissues in the zone of penetration. If one examines a tuna after storage for some time in brine at 20 degrees F., it will be noted that although the fish is rigid and obviously frozen, nevertheless the surface to a depth of almost an inch is not frozen. This fact is explained by the presence of salt here which lowers the freezing point below that of storage. As a matter of fact we found that the surface of those fish subsequently stored dry at about 10 degrees F. was still unfrozen. The practical significance of this observation is that brine-frozen fish left in brine for any appreciable length of time and then stored dry are apt to suffer physical damage at the surface from bulk storage.

In this connection one other series of observations deserves comment. In the case of both brine wells we eventually pumped the brine out some time before unloading and applied refrigeration through the coils. In one case we allowed the temperature to drop to zero F. and below. In the other we tried to maintain it at the previous temperature of storage, i.e. 25 degrees F. When unloading these fish it was noted that those in the zero degree F. well were to a certain extent stuck together and in extreme instances attempts to separate such fish resulted in damage to them. By contrast, the fish in the second well which was maintained about 25 degrees F., the temperature of the previous brine storage, were in an ideal unloading condition. No fish were stuck together, and a few apparently stuck against the coils were easily removed without damage to a single fish.

3. Temperature and Quality:

The two experimental loads of fish, in 20 degrees F. and 25 degrees F. brine, were sampled regularly throughout the storage period. The scope of the sampling included notes on the appearance and condition of the fish, trimethylamine determinations, the cooking, examination and canning of each sample, and finally an appraisal by the inspectors of the Board of Health at the final unloading. Summarizing the results of all the evidence we can draw the following conclusions and substantiate them by such data as seems pertinent.

Firstly, 20 degrees F. proved a superior storage temperature to 25 degrees F. This theoretically obvious conclusion is supported by the following original data. (1) Trimethylamine reached its limiting value at about 110 mg. nitrogen per 100 cc's press juice after approximately 20 days storage in 25 degrees F. brine, whereas it took about 25 days in 20 degrees F. brine to attain this value. This means that storage may be prolonged by about 20 per cent at 20 degrees F. as compared with 25 degrees F. (2) It was generally agreed that salt penetration was noticeably greater at 25 degrees F. than at 20 degrees F. (3) "'Frozen effect" (the pitting of the membranes between muscle layers) was more extensive and occurred earlier in storage in 25 degrees F. brine than in 20 degrees F. brine. (4) "Belly-burn" was more pronounced in the 25 degrees F. fish than in the 20 degrees F. fish. However, the amount and

nature of this contained food may be a deciding factor in this matter. (5) Finally, the evaluation by the Board of Health of our deliveries to the cannery rated the fish canned after 44 days in brine at 20 degrees F. as about equal to those stored in brine at 25 degrees F. for 23 days.

The second conclusion which may be drawn pertains to the permissible length of storage. As there were no rejections, and as the entire pack passed inspection, it follows that the entire lot met the cannery and Board of Health standards of quality. As the storage age of all fish is known, as well as their complete refrigeration history, we can definitely state that; providing the fish are chilled promptly to, and then maintained constantly at 25 degrees F., they may safely be stored in brine at this temperature for 31 days in an acceptable condition. Again, providing that fish are chilled promptly to and then maintained constantly at 20 degrees F., tuna may be kept in brine at this temperature in an acceptable condition for a period of 44 days.

4. Suggestive procedure:

It should now be possible to outline a suggestive refrigerating procedure to be followed by the tuna boats. If the boat operators can and will follow these three dictates, there will be little occasion for spoiled fish.

1. Separate entirely the chilling from the storage functions.
2. Chill separately and promptly to storage temperature.
3. Store separately at a uniform and reasonably constant temperature not higher than 20 degrees F.

Chilling: It makes little difference how refrigeration is applied, so long as the fish are brought to storage temperatures as soon and as rapidly as possible after capture. Many fishermen have asked how long fish may safely be left on deck. This question reveals a widespread misunderstanding about spoilage. Spoilage is not an abrupt change that occurs suddenly after exposure to adverse conditions for a certain length of time. It is a continuous process, beginning at death and hastened by high temperatures, that gradually effects a change from the strictly fresh to the stale and ultimately putrid condition. There is absolutely no way of stopping this process. The best we can do is to slow it down, and this can only be done—in the present case—by lowered temperatures.

To bring tuna down to storage temperatures they may be dumped directly in 20 degrees F. (or colder) brine, or alternatively dumped first into chilled sea-water at about 30 degrees F. Whatever is used, the tank or well should at all times be kept filled with the liquid. Results of our own experiments have shown that it requires up to 50 hours to reduce the temperature of 2-pole* tuna from about 85 degrees F. to 20 degrees F. in brine at the latter temperature. In the case of chilled sea-water it requires about 15 hours to bring the temperature of small, 2-pole tuna throughout down to about 32 degrees F., in 30 degrees to 32 degrees F. water. In both cases larger fish will take proportionately longer. If therefore tuna are to be chilled directly in brine to a storage temperature of 20 degrees F., they should be left therein for not less than 48 hours. Providing the brine can be maintained throughout at 20 degrees F. it may then be assumed, except in the case of large, e.g. 3-pole fish, that the fish will be uniformly chilled at 20 degrees F.

Concerning the respective merits of chilling directly in 20 degrees F. brine and chilling in two successive stages of sea-

(Continued on page 18)

*In catching tuna of about twenty or thirty pounds in weight, each man fishes individually with his pole and line; this is known as one-pole fish, designating the size of the tuna. Fish of approximately thirty pounds require two men or two poles, and those weighing fifty or sixty pounds are fished by three men, their lines meeting in a common ring and a single hook. Larger fish are taken with four and five lines with a common hook and leader. Because of the large size of the fish, teamwork is necessary to lift the fish from the water and over the railing of the vessel.

Maine

Clam Industry Being Aided by Propagation Program

FOR many years now diggers, canners and fresh clam dealers of Maine have claimed that the flats were being exhausted and that before very long Maine's extensive clam industry would be a thing of the past. There has been a lot of talk about various methods of taking care of the situation but little done about it until Commissioner Greenleaf, last month, announced the biggest and best news the industry has heard since the two-inch clam law went in effect.

Greenleaf had cut corners to set aside enough money from his regular appropriation to launch a propagation program, that although comparatively small, was well above the experimental stage. He said that he hoped to be able to propagate at least two acres in each of the coastal counties and this would mean the eventual natural seeding in of at least a couple of hundred acres.

Armed with facts and figures from Massachusetts, where clam farming is an art as well as a great business, Greenleaf engaged Captain Carl Reed of Owls Head to supervise the work and sent him with his boat the *Flora C.* into Casco Bay. With a couple of helpers Captain Reed has planted several acres over in that section and is now bound "down East" to try to revive some "dug-out" areas down there.

Greenleaf states that he is much pleased with the work to date and plans to ask Legislature for a good sized appropriation to carry on on a bigger scale next year. Meanwhile he is negotiating with the National Youth Administration to get a crew of young workmen to help Captain Reed and make the small amount of money now available go much farther.

The whole operation is simple enough, even simpler than dirt farming because you don't need a plow or fertilizer.

First of all a nice piece of flats that used to produce thousands of barrels of clams a year, and is now practically barren, was inspected. A case history showed that the flats had been overdug and Captain Reed decided that they were still capable of producing a lot of the luscious bivalves.

Wardens took the crew to many places where clams were seeded in so thick that it was impossible for them to grow. Several bushels of small seed clams were dug and taken to the flats at Little Chebeague. At low water the crew dug long furrows about three inches deep and 12 to 15 inches apart over about half an acre. The seed clams were thrown in at a reasonable distance apart and covered. The tide came in to flatten the planted area and the clams were firmly implanted in their new home.

Each clam throws off from two to three million eggs. These will emerge from the holes and be scattered over the entire areas by the tide. As there are plenty of rocks and shells on the beach they will catch the seeds and it is predicted that within two years clamming will be just as good as ever over a wide area on this island.

This same process will be used during the entire program. When figures show that an acre contains more than a million clams or approximately 1,000 bushels which produce at least

Normal Supply of Oysters

REPORTS received from production centers indicate that there will be a normal but not overabundant supply of oysters of excellent quality for so early in the season. In the North, relatively smaller stocks of large oysters and increased cost of production presage firmer prices on these grades than a year ago. Jersey expected to have more large oysters than in recent years but a mud condition may have so reduced stocks that some anticipate only a normal marketing year. In the Chesapeake conditions appear favorable for a normal crop of better than average size. It is still too early to evaluate the possible damages to the oyster industry of the Carolinas by the hurricane of August 11, 1940.

The "North Star" after launching at Rockland, Maine.

five billion eggs a year it can easily be imagined how fast these bivalves produce.

During his investigations of the Massachusetts program, Greenleaf uncovered much interesting information and states that the results of work in that State is almost beyond belief. He cited one case of where three towns spent $15,000 in clam farming one year and two years later took more than $200,000 worth of the bivalves from the propagated areas.

Maine Landings for July

Maine fish landings for July were considerably in excess of those for the same period last year and fishermen received $340,559 for their wares or an increase of nearly $50,000.

Although lobsters were well out ahead with 690,000 pounds bringing $103,000, haddock, cod and other groundfish species made the biggest gain. This was caused by a large pack of fish chowder and other products by canneries. There was a noticeable decrease in landings of herring and blood and sandworms. Scattered schools of mackerel cut down the catches of that species. Tuna landings were a little larger but the price was much lower.

Leading species were: 731,000 lbs. codfish; 2,200,000 lbs. haddock; 1,475,000 lbs. hake; 370,000 lbs. pollock; 785,000 lbs. rosefish; 180,000 lbs. flounders; 1,065,000 sand and blood worms; 690,000 lbs. Maine lobsters and 39,500 lbs. Canadian lobsters; 1,900,000 lbs. whiting; 266,000 lbs. mackerel; 42,000 lbs. tuna; 58,000 lbs. butterfish; 23,290 bushels clams; and 84,199 bushels of herring.

"North Star" Launched

The *North Star*, 121-foot wooden beam trawler built by Snow Shipyards, Inc., Rockland, for Frederick and John O'Hara of Boston, was launched September 2. The craft was christened by Miss Helen M. O'Hara.

The new vessel represents an investment of approximately $145,000. Five months of work has already gone into her and it will be about six weeks hence before she is completely finished.

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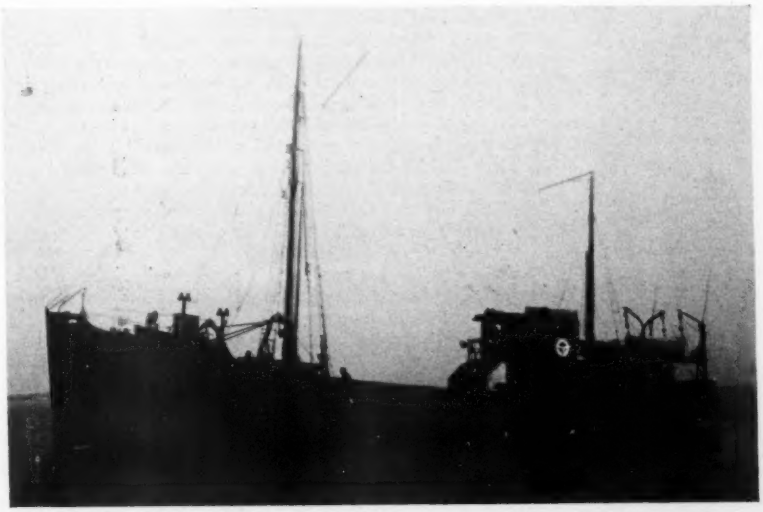

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nature of this contained food may be a deciding factor in this matter. (5) Finally, the evaluation by the Board of Health of our deliveries to the cannery rated the fish canned after 44 days in brine at 20 degrees F. as about equal to those stored in brine at 25 degrees F. for 23 days.

The second conclusion which may be drawn pertains to the permissible length of storage. As there were no rejections, and as the entire pack passed inspection, it follows that the entire lot met the cannery and Board of Health standards of quality. As the storage age of all fish is known, as well as their complete refrigeration history, we can definitely state that; providing the fish are chilled promptly to, and then maintained constantly at 25 degrees F., they may safely be stored in brine at this temperature for 31 days in an acceptable condition. Again, providing that fish are chilled promptly to and then maintained constantly at 20 degrees F., tuna may be kept in brine at this temperature in an acceptable condition for a period of 44 days.

4. Suggestive procedure:

It should now be possible to outline a suggestive refrigerating procedure to be followed by the tuna boats. If the boat operators can and will follow these three dictates, there will be little occasion for spoiled fish.

1. Separate entirely the chilling from the storage functions.
2. Chill separately and promptly to storage temperature.
3. Store separately at a uniform and reasonably constant temperature not higher than 20 degrees F.

Chilling: It makes little difference how refrigeration is applied, so long as the fish are brought to storage temperatures as soon and as rapidly as possible after capture. Many fishermen have asked how long fish may safely be left on deck. This question reveals a widespread misunderstanding about spoilage. Spoilage is not an abrupt change that occurs suddenly after exposure to adverse conditions for a certain length of time. It is a continuous process, beginning at death and hastened by high temperatures, that gradually effects a change from the strictly fresh to the stale and ultimately putrid condition. There is absolutely no way of stopping this process. The best we can do is to slow it down, and this can only be done—in the present case—by lowered temperatures.

To bring tuna down to storage temperatures they may be dumped directly in 20 degrees F. (or colder) brine, or alternatively dumped first into chilled sea-water at about 30 degrees F. Whatever is used, the tank or well should at all times be kept filled with the liquid. Results of our own experiments have shown that it requires up to 50 hours to reduce the temperature of 2-pole* tuna from about 85 degrees F. to 20 degrees F. in brine at the latter temperature. In the case of chilled sea-water it requires about 15 hours to bring the temperature of small, 2-pole tuna throughout down to about 32 degrees F., in 30 degrees to 32 degrees F. water. In both cases larger fish will take proportionately longer. If therefore tuna are to be chilled directly in brine to a storage temperature of 20 degrees F., they should be left therein for not less than 48 hours. Providing the brine can be maintained throughout at 20 degrees F. it may then be assumed, except in the case of large, e.g. 3-pole fish, that the fish will be uniformly chilled at 20 degrees F.

Concerning the respective merits of chilling directly in 20 degrees F. brine and chilling in two successive stages of sea-

(Continued on page 18)

*In catching tuna of about twenty or thirty pounds in weight, each man fishes individually with his pole and line; this is known as one-pole fish, designating the size of the tuna. Fish of approximately thirty pounds require two men or two poles, and those weighing fifty or sixty pounds are fished by three men, their lines meeting in a common ring and a single hook. Larger fish are taken with four and five lines with a common hook and leader. Because of the large size of the fish, teamwork is necessary to lift the fish from the water and over the railing of the vessel.

Maine

Clam Industry Being Aided by Propagation Program

FOR many years now diggers, canners and fresh clam dealers of Maine have claimed that the flats were being exhausted and that before very long Maine's extensive clam industry would be a thing of the past. There has been a lot of talk about various methods of taking care of the situation but little done about it until Commissioner Greenleaf, last month, announced the biggest and best news the industry has heard since the two-inch clam law went in effect.

Greenleaf had cut corners to set aside enough money from his regular appropriation to launch a propagation program, that although comparatively small, was well above the experimental stage. He said that he hoped to be able to propagate at least two acres in each of the coastal counties and this would mean the eventual natural seeding in of at least a couple of hundred acres.

Armed with facts and figures from Massachusetts, where clam farming is an art as well as a great business, Greenleaf engaged Captain Carl Reed of Owls Head to supervise the work and sent him with his boat the *Flora C.* into Casco Bay. With a couple of helpers Captain Reed has planted several acres over in that section and is now bound "down East" to try to revive some "dug-out" areas down there.

Greenleaf states that he is much pleased with the work to date and plans to ask Legislature for a good sized appropriation to carry on on a bigger scale next year. Meanwhile he is negotiating with the National Youth Administration to get a crew of young workmen to help Captain Reed and make the small amount of money now available go much farther.

The whole operation is simple enough, even simpler than dirt farming because you don't need a plow or fertilizer.

First of all a nice piece of flats that used to produce thousands of barrels of clams a year, and is now practically barren, was inspected. A case history showed that the flats had been overdug and Captain Reed decided that they were still capable of producing a lot of the luscious bivalves.

Wardens took the crew to many places where clams were seeded in so thick that it was impossible for them to grow. Several bushels of small seed clams were dug and taken to the flats at Little Chebeague. At low water the crew dug long furrows about three inches deep and 12 to 15 inches apart over about half an acre. The seed clams were thrown in at a reasonable distance apart and covered. The tide came in to flatten the planted area and the clams were firmly implanted in their new home.

Each clam throws off from two to three million eggs. These will emerge from the holes and be scattered over the entire areas by the tide. As there are plenty of rocks and shells on the beach they will catch the seeds and it is predicted that within two years clamming will be just as good as ever over a wide area on this island.

This same process will be used during the entire program. When figures show that an acre contains more than a million clams or approximately 1,000 bushels which produce at least

Normal Supply of Oysters

REPORTS received from production centers indicate that there will be a normal but not overabundant supply of oysters of excellent quality for so early in the season. In the North, relatively smaller stocks of large oysters and increased cost of production presage firmer prices on these grades than a year ago. Jersey expected to have more large oysters than in recent years but a mud condition may have so reduced stocks that some anticipate only a normal marketing year. In the Chesapeake conditions appear favorable for a normal crop of better than average size. It is still too early to evaluate the possible damages to the oyster industry of the Carolinas by the hurricane of August 11, 1940.

The "North Star" after launching at Rockland, Maine.

five billion eggs a year it can easily be imagined how fast these bivalves produce.

During his investigations of the Massachusetts program, Greenleaf uncovered much interesting information and states that the results of work in that State is almost beyond belief. He cited one case of where three towns spent $15,000 in clam farming one year and two years later took more than $200,000 worth of the bivalves from the propagated areas.

Maine Landings for July

Maine fish landings for July were considerably in excess of those for the same period last year and fishermen received $340,559 for their wares or an increase of nearly $50,000.

Although lobsters were well out ahead with 690,000 pounds bringing $103,000, haddock, cod and other groundfish species made the biggest gain. This was caused by a large pack of fish chowder and other products by canneries. There was a noticeable decrease in landings of herring and blood and sandworms. Scattered schools of mackerel cut down the catches of that species. Tuna landings were a little larger but the price was much lower.

Leading species were: 731,000 lbs. codfish; 2,200,000 lbs. haddock; 1,475,000 lbs. hake; 370,000 lbs. pollock; 785,000 lbs. rosefish; 180,000 lbs. flounders; 1,065,000 sand and blood worms; 690,000 lbs. Maine lobsters and 39,500 lbs. Canadian lobsters; 1,900,000 lbs. whiting; 266,000 lbs. mackerel; 42,000 lbs. tuna; 58,000 lbs. butterfish; 23,290 bushels clams; and 84,199 bushels of herring.

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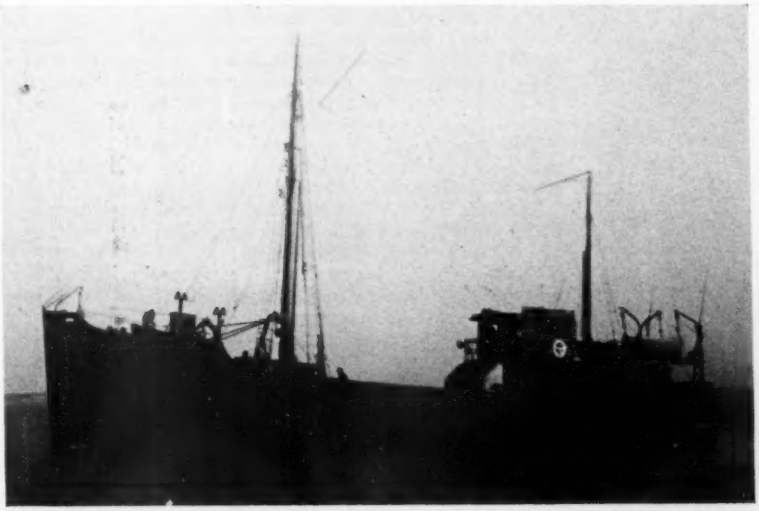

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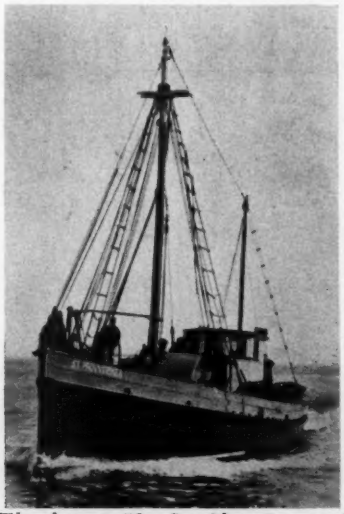

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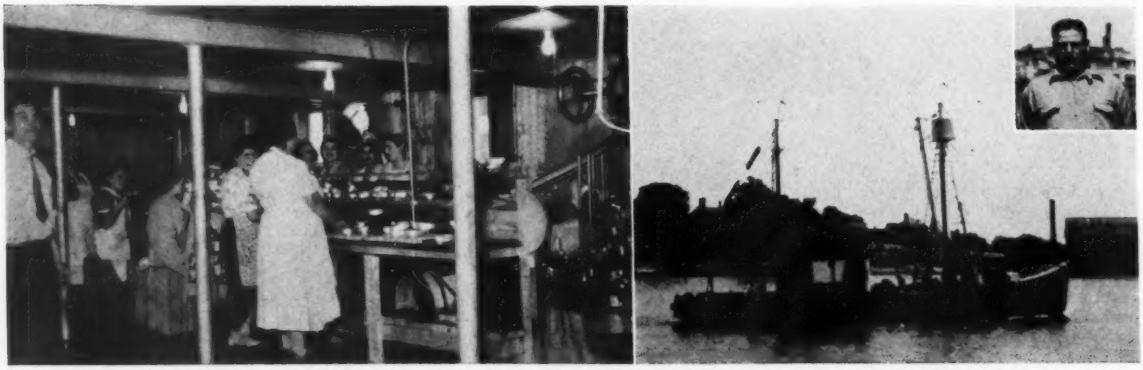


New cannery of Progressive Fish Wharf, Inc., Gloucester, Mass., showing packing table and sealing machine, and Leo Linquata, head of the firm, standing at left. At right, the "Saint Ann" which caught tuna for the plant, with her Captain, Leo Favaloro, inset. The boat has a 150 hp. Wolverine Diesel engine, Hathaway winch, Surrette battery, Roebling wire rope, Plymouth cordage and Harvey radio telephone.

takes about 72 hours. The kelp is treated chemically, and an alginic acid is extracted and from the dark brown kelp is made a beautiful white powder, which is the finished product as far as the Algin Corp. is concerned.

The Nova Scotia kelp beds are under Government supervision and those who harvest the kelp must cut it and not pull it up by the roots.

The largest consumers of the product are the ice cream industries. Mixed with the usual ingredients, the algin prevents those icy particles and formation of undesirable compounds, and gives the cream body and smoothness when melted.

Among the many other uses for algin acid powder is in the manufacture of cosmetics, hand lotions, etc., in making rubber latex, in textile mills for holding the die on the printing rolls, in the paper industry for surfacing and finishing paper, in making lacquers and paints, in making waterproof paint and even in shatterproof glass.

Potential Oyster Beds Being Surveyed

Sea and Shore Fisheries Commissioner Arthur R. Greenleaf announced on August 29 that a two week survey of potential oyster beds along the Maine coast would be started shortly by Paul S. Galtsoff, in charge of shellfish investigations of the U. S. Dept. of Interior, Fish & Wildlife Service, and his assistant, Dr. W. A. Chipman, Jr. Greenleaf said that the men were assigned to the work at the request of his department and that the results of their studies would have a lot of bearing on future oyster propagation activities.

Records reveal that Maine had a substantial oyster fishery many years ago but that for some reason the supply ran out. Various propagation attempts have been made in the past and although the plantings were small some areas have seen the shellfish multiply. Two years ago the department planted several bushels in a likely spot near Boothbay Harbor and the beds have now grown to sizable proportions.

Greenleaf indicated that if the experts saw possibilities in the re-establishment of an oyster fishery his department would launch a reasonably large experimental propagation program.

Dock of the Yankee Oil Co. at Gloucester, Mass., distributors of Esso Diesel fuel, gasoline and range oil. Headed by Capt. John F. Barrett, and affiliated with S. B. Ruth, Inc., a complete line of vessel supplies is provided.

Bounty on Seals Discontinued

Due to the exhaustion of funds payment of bounties on seals by the Department of Sea and Shore Fisheries will be discontinued at once, Commissioner Arthur R. Greenleaf announced on August 19. He said that although legislature put the bounty into effect it failed to provide additional money for this purpose with the result that the department found it necessary to make payments from the regular appropriation.

College Boys Start New Industry on Maine Coast

Three Bowdoin College boys have been providing themselves with good jobs this Summer by tapping a natural resource that but few folks know is in existencee. They discovered that due to the war the imports of sea moss from Europe had necessarily been cut off, with a resulting rise in the price for this product. Then they found that the entire coast of Maine is literally covered with this moss.

Then they found a Boston dealer who would take all the moss they could produce in a dry form and who would pay them approximately 6c a pound for it.

The next step was to find a good source of supply and they finally rented an island in Casco Bay, the rocky shores of which were covered with the moss.

Their equipment for getting this moss consisted of a 32 ft. power boat, a dory and three long handled rakes.

The process of getting and drying the moss is comparatively simple. The best moss is found just below low tide level in 4 to 6 feet of water. The rakes have long closely set prongs and are mounted on 12 ft. handles. Pulled over the rocks and ledges, the rakes come up well filled nearly every time. After the dory is filled, the moss is taken ashore and spread thinly on the drying area for several hours. It is then washed in a tub and spread again. After another washing it is dried for a final time and then packed into bales for shipment.

At present the boys are trying to discover a way of processing the wet moss to make it commercially suitable without going through the tedious and dangerous sun drying process. They believe that if this can be done they will be able to compete favorably with the European producers.

The harvesting season lasts from May to October and the moss will replace itself on raked-over areas during the Summer, thereby giving two crops.

Gloucester

New Canning Plant Has Successful First Season

THE new canning plant of Progressive Fish Wharf, Inc., Gloucester, is reported to have had a successful pack during its first season of operation. The Company has canned two products: tuna fish, packed with olive oil in 3½ oz. cans, and mackerel, in 12-oz. oval cans and 15-oz. tall cans. Tuna is labeled under Saint Ann brand and mackerel under Progressive brand.

The packing room, which is 30 x 60, is compactly arranged for efficient production. The cleaning and cutting into fillets of the mackerel is done in an adjacent building.

Packing is performed by women on a specially designed table, equipped with conveyor belts. The fish is packed in Canco cans, which are sealed in two American Can Co. closure machines, one for oval cans and the other for round. After being sealed, the cans are placed in Portland Company retorts, of which there are three.

For tuna canning, only the light meat is used from fish which weigh from 10 to 150 pounds. After removal of head and entrails, the tuna are placed in galvanized baskets, 10 of which are placed on each of the 8 movable racks that are rolled into a steam cooker 24 feet long. After cooking, the tuna is sliced on a special cutting machine, ready for packing.

The finished products are shipped in Agar corrugated cartons. About 40 people are employed throughout the plant.

Special attention has been given to keeping the plant thoroughly clean and sanitary. Every day the concrete floor is washed down, all tables and trays are scoured with soap solution and the sealing machinery is subjected to live steam. As a result no objectionable odors are present.

Robinson Shipyard Expanding

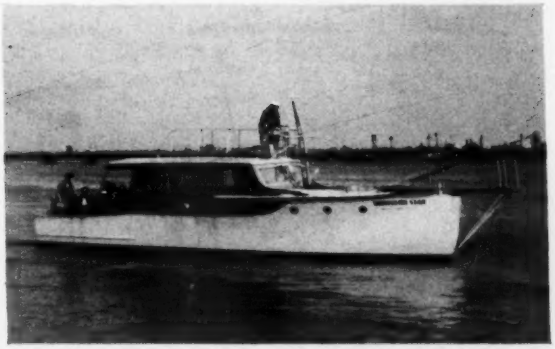
W. A. Robinson, Inc., shipbuilders in Ipswich, Mass., are expanding their plant to include equipment for composite construction, in additon to their wood building facilities.

The Company operates a modern, enclosed plant, which allows working under all weather conditions. There is adequate space for all types of fishing craft.

Although the yard has built both yachts and fishing boats in the past, it is now specializing in fishing and commercial vessel construction.

Shortage of Clams

A shortage of clams is developing among Massachusetts beds. In the Ipswich-Essex district, an important clam center, there have been shortages off and on all Summer. In order to forestall an inadequate supply for Labor Day week-end business, the Town of Ipswich opened one of the Winter beds for a week.



"Northern Star", owned by Capt. John Sanford of Brielle, N. J., and Miami Beach, Fla., and powered with Twin Chrysler Crown 90 hp. engines.

The shortage exists mainly in small clams, there still being a fair supply of medium and large sizes. However, the business in this section has been built up largely on the small variety.

The only solution seems to be more extensive cultivation, with the seeding of areas which are now barren. This work is usually financed by Town appropriations, but it is felt that the State should augment the local funds.

"Alvan T. Fuller" Sold

The 88 ft. dragger *Alvan T. Fuller* was sold on September 9 to Mrs. Jorgina Vierra of East Boston. The vessel is nine years old, and her new owner was a former part owner. The *Fuller* is powered with a 275 hp. Atlas Diesel, and will continue fishing as usual.

New Dragger for Arvilla

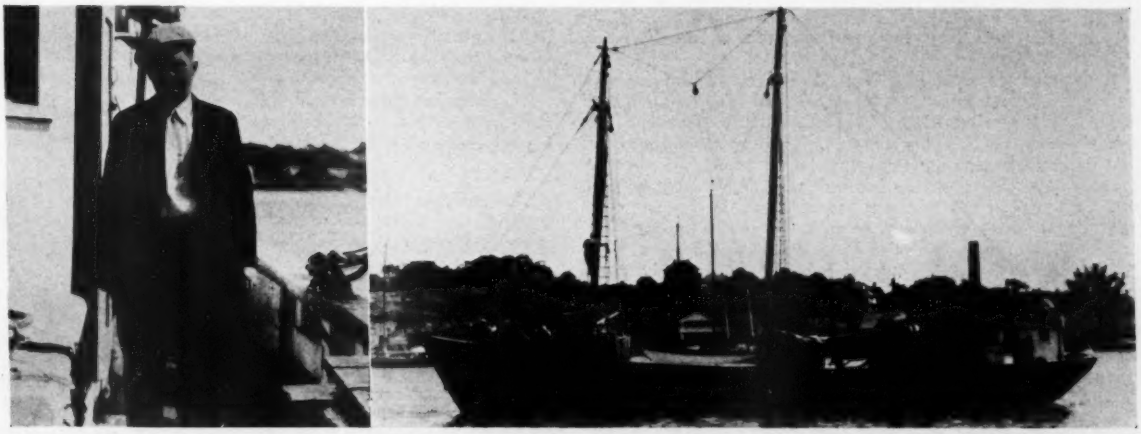
Lyman James Shipyard at Essex has started construction of a 95-ft. dragger for Manuel Arvilla of Gloucester. Arvilla is now a crew member aboard the swordfisherman *Evalina M. Goulart.*

"Raymonde" to Have New Cooper-Bessemer

The *Raymonde,* owned by Central Wharf & Vessels Co., is to be repowered with a GN6-260 hp. Cooper-Bessemer Diesel, direct reversible with sailing clutch. This will replace a 180-hp. engine of the same make. The boat will change over to dragging, after having been a halibuter and handliner under Capt. Carl Olsen.

New Boat for Plymouth Captain

Wm. H. Ross, boatbuilder of South Essex, recently completed a 42-foot combination gill net and party fishing boat for Capt. John Leville of Plymouth.



Capt. Nelson Amero of Gloucester, and his "Doris F. Amero", powered with a 200 hp. Atlas Imperial Diesel engine, and equipped with Western Electric radio telephone, Bludworth direction finder, Fathometer and Exide batteries.

Boston Pier Landings for August

(Hailing fares. Figure after name indicates number of trips.)

Adventure (4)	362,000	*Laura Goulart* (1)	52,000
Adventure II (3)	209,000	*Maine* (1)	164,000
Alice and Mildred (2)	85,000	*Maris Stella* (2)	143,000
American (2)	170,000	*Marjorie Parker* (3)	124,000
Arlington (3)	596,000	*Mary and Julia* (1)	45,000
Atlantic (2)	190,000	*Mary Grace* (3)	130,000
Bettina (3)	172,000	*Mary E. O'Hara* (4)	245,000
Billow (2)	300,000	*Mary Jane* (3)	181,000
Bittern (1)	168,000	*Neptune* (4)	369,000
Boston (3)	248,000	*New Bedford* (1)	53,000
Breaker (3)	296,000	*Newfoundland* (1)	49,000
Breeze (3)	317,000	*Newton* (3)	374,000
Brookline (3)	405,000	*Ocean* (3)	327,000
Cambridge (4)	320,0000	*Olympia* (2)	128,000
Cape Ann (3)	108,000	*Palestine* (2)	92,000
Comber (3)	267,000	*Plymouth* (5)	430,500
Cormorant (3)	449,000	*Pollyanna* (4)	228,000
Crest (3)	387,000	*Quincy* (4)	352,000
Delaware (1)	140,000	*Raymonde* (1)	40,000
Dorchester (3)	314,000	*R. Eugene Ashley* (1)	40,000
Ebb (3)	299,000	*Ripple* (3)	300,000
Eleanor (4)	140,000	*Rose and Gracie* (1)	45,000
Elizabeth N. (2)	100,000	*Ruth and Margaret* (2)	114,000
Ethel B. Penny (4)	178,000	*St. George* (2)	212,000
Eunice Lillian (1)	7,000	*Saint Joseph* (1)	25,000
Fabia (5)	777,000	*Sea* (2)	272,000
Famiglia (1)	29,000	*Sea Ranger* (1)	73,000
Fannie F. Hickey (4)	148,400	*Shamrock* (4)	327,000
Flow (1)	130,000	*Shawmut* (3)	254,000
Frances C. Denehy (4)	220,000	*Spray* (3)	367,000
Gale (3)	457,000	*Squall* (4)	455,000
Gertrude De Costa (1)	65,000	*Storm* (3)	408,000
Gertr'de L. Thebaud (1)	80,000	*Surf* (3)	352,000
Gossoon (4)	323,000	*Swell* (3)	363,000
Gov. Saltonstall (1)	62,000	*Thomas Whalen* (4)	384,000
Grand Marshall (1)	74,000	*Tide* (3)	352,000
Harriet N. Eldredge (1)	43,000	*Trimount* (2)	178,000
Hekla (3)	367,000	*Triton* (3)	261,000
Helen M. (2)	65,000	*Vagabond* (2)	78,000
Holy Cross (2)	219,000	*Vandal* (3)	155,000
Illinois (1)	101,000	*Venture II* (3)	166,000
Irene and Mabel (1)	30,000	*Wamsutta* (1)	55,000
J. M. Marshall (1)	95,000	*Wave* (4)	369,000
Josie M. (1)	22,000	*Whaling City* (2)	60,000
Julia and Eleanor (2)	113,000	*Wm. H. Killigrew* (3)	128,000
Killarney (2)	100,000	*Wm. J. O'Brien* (2)	167,000
Kittiwake (1)	165,000	*Wm. L. Putnam* (2)	165,000
Lark (4) (Str.)	378,000	*Winchester* (4)	306,900
Lark (3)	225,000	*Winthrop* (4)	341,000

New Type Haddock Tag

Resembling a watch with a fob, the "internal anchor"—a recently developed type of fish tag—is proving highly successful in the tagging of haddock, according to a statement from the North Atlantic Fishery Investigations staff of the Fish and Wildlife Service.

A flat piece of celluloid (the watch) is inserted into the body cavity. A second piece of colored celluloid (the fob) is joined to the first by a short piece of chain and dangles outside of the fish where it can be easily detected. This tag cannot come off and does not become too tight as the fish grows.

Early attempts at tagging haddock with regulation tags gave poor results, since this species is very delicate. In the past three years, however, improvements in the technique of handling and in the types of tags developed have assured success.

The new type tag—first tried in 1938—has already given promising results. Out of 900 haddock liberated in 1940, half were so tagged. Some of these tags which were put on in 1938 have been recovered after two years at sea. Of the haddock tagged in June, 1939, off Mt. Desert Island, Maine, 13½ percent have already been recaptured.

On the Ways

During the month of August the following fishing vessels were on the ways at the Atlantic Works of the Bethlehem Shipbuilding Corp.: *Cambridge, Billow, Vandal, Julia Eleanor, Rainbow, Venture, Vagabond, Ebb* and *Venture II.*

Long Island Oyster Growers Hold Annual Outing

THE Long Island Oyster Growers' division of the Middle Atlantic Fisheries Association made its inspection of oyster grounds on September 6. Guests included members of the industry, Government officials and allied tradesmen.

Several oyster dredgers took the delegation from West Sayville for a sail on Great South Bay. This was followed by the fifteenth annual shore dinner.

Oyster Companies in Greenport Area

The oyster companies which maintain plants or do business in the vicinity of Greenport are: Lester & Toner, Cedar Island Oyster Co., South Ferry Oyster Co., J. & W. Elsworth Oyster Co., Bluepoints Co., Inc., Robert Utz & Sons, E. E. Ball, Thompson & Co., Shelter Island Oyster Co., H. C. Rowe Co., American Oyster Co., Sea Coast Oyster Co., Modern Oyster Co., Greenport Oyster Co. and Radel Oyster Co.

The Shelter Island Oyster Company has moved its plant from Shelter Island to Greenport and increased its facilities.

It is estimated that the oyster industry affords employment for approximately 500 men in Greenport alone with an estimated payroll of three-quarters of a million dollars.

New Bluepoints Plant Opened

The new plant of the Bluepoints Oyster Company, located on Shipyard Lane, East Marion, which was started last March, began business about the middle of this month. Captain Chris Jensen of Greenport is manager of the plant, which is one of the most modern and efficient oyster plants in the country.

A harbor or basin 200 by 200 with a channel 500 feet in length has been dredged connecting the company's site with the bay.

About 160 men will be employed at the plant. The new building of steel, brick, cinder block and concrete construction, is a two story fireproof structure 200 by 120 feet.

Traps Florida Tarpon

For the third time in twelve years a tarpon, a game fish whose native home is the warm waters off the Florida Coast, was caught in the fish traps of Captain Oliver Case in Long Island Sound off Arslimomque last month. The tarpon weighed 75 pounds and was 5½ feet in length. In 1928 Captain Case caught his first tarpon, weighing 68 pounds. A few weeks later an 80-pound tarpon was also caught by Mr. Case in the traps.

Best Broadbill Season Since 1926

Captain Fielder of Greenport, in the fishing boat *Emerald*, while on a recent week's cruise off Montauk, harpooned 29 broad bill swordfish. These fish when dressed and ready for market weighed over 6,000 lbs.

Bonita Plentiful

Veteran fishermen along the coast are in somewhat of a quandary over the absence of bluefish and dolphin which are usually plentiful about this time of year. While these species seem to have disappeared vast schools of bonita are to be found in their place.

The trap fishermen both in the Sound and Bay are making very good catches of bonita, which have been running well during the entire season. The catch has been better than in years.

Good Scallop Prospects

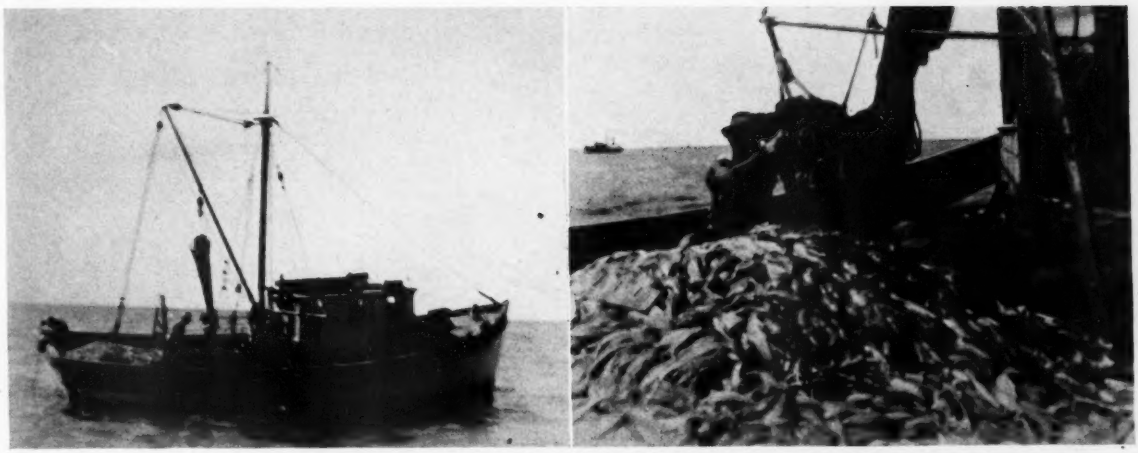
The prospects are better than last year for a good scallop season as bug scallops are quite plentiful. Bug scallops planted at Peaks Neck last Fall have made a satisfactory growth.

Good Fishing at Montauk

Tuna are still hitting off Montauk, and broad bill and white marlin are sighted frequently. The bottom fishing boats are doing very well, with plenty of sea bass, porgies and mackerel. Large catches of menhaden are being made, the largest in several seasons. Plenty of school tuna have been encountered southeast of Fire Island lightship. The fish range from 20 to 35 pounds in weight.

Sag Harbor

Skippers out of Sag Harbor are making good catches of kingfish and porgies, an unusual catch for this time of the year.



The "J. J. Hanson" of the John Santos fleet, St. Augustine, Fla., and Patterson, La., with a deck load of shrimp. The "J. J. Hanson" is powered with a 100 hp. Superior Diesel Engine.

Florida Ranks High

FLORIDA ranks eighth of 37 states producing fresh and salt water fish. Florida produces 232,175,400 pounds, at a wholesale value going to fishermen of $5,050,980, it was stated here by a visiting statistical agent of the U. S. Fish and Wildlife service.

The West coast of Florida produces only half as much seafood as the East coast, but receives twice as much value per pound due to the production of shrimp, he said. Florida produces 20 percent of all the shrimp in the United States.

Committee for Fishery Legislation

A steering committee composed of 18 fishermen and dealers has been appointed to draft proposed legislation for the fishing industry to be presented at the 1941 session. Frank Fant, president of the Jacksonville Fish Company, was named chairman.

New Licensing Rule

Florida supreme court ruled that pleasure fishing boats more than 10 feet in length and four feet in beam must be licensed even though they are used only for rod-and-reel fishing and not for netting or other kinds of commercial fishing.

Blames Searchlights for Lack of Fish

A reason, different from the usual one of the freeze last Winter, has been given for the scarcity of food fish in waters near Estero, Fla.

According to one veteran fisherman, the main cause of it all is the use of brilliant searchlights carried on boats engaged in night fishing. The searchlights streak the water and scare the fish, which take refuge in the open Gulf. It should be investigated by the State Fish and Game Conservation Commissioner.

38-Lb. Kingfish Landed

Demeritt Brothers, Key West commercial fishermen, made an unusual catch recently of a 38-pound kingfish.

Shark Processing Plant

Gulf Coast fishermen are preparing to cash in on sharks, which come from tropical waters in great numbers. The Seawealth Corporation, headed by John Hewlett, has just completed a $50,000 shark fishery and processing plant at Caxambas, in Collier County.

The plant is said to be equipped for handling the shark livers, rendering from them an oil, said to be similar to cod liver oil. By-products also will be commercialized.

New Radio Beacon Established

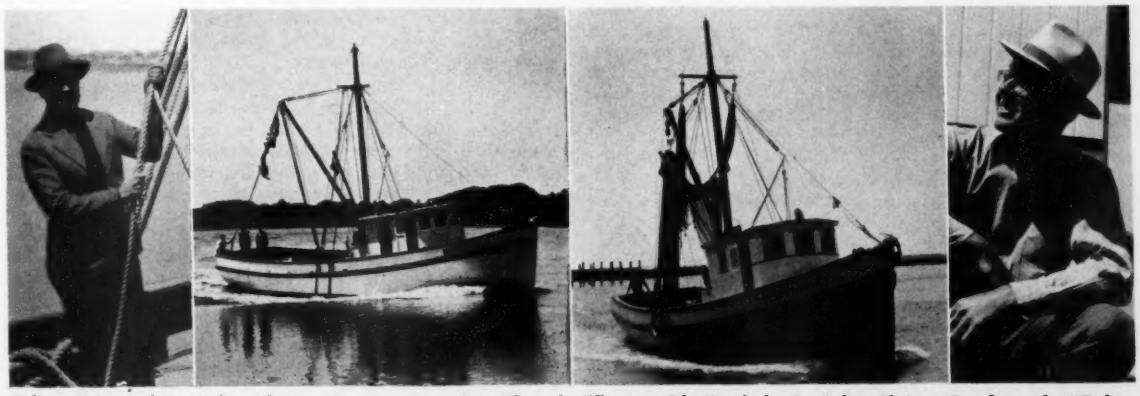
A radio beacon for the aid of vessels in the lower Florida coastal waters was established on August 5 at the Ponce de Leon Light Station, the Coast Guard has announced.

The shipping aid has been installed, according to the Coast Guard office, to enable vessels to get a cross bearing between Cape Canaveral radio beacon and the Jupiter beacon.

Miss. Shrimp Price Situation

Failure of the seafood packers and fishermen to agree on a price for shrimp was still proving costly to the Mississippi coast and Biloxi in particular late last month. One Biloxi packer stated on August 30 that the failure of the factories to operate was costing the city $200,000 a week.

The fisherman's union has set the price at approximately $8 a barrel, while the packers say that Louisiana packers are paying only $6.50 and that the Mississippi packers are unable to pay the price asked and compete with Louisiana packers.



Felice Golino of St. Johns Shrimp Co., St. Augustine, Fla.; the "Frances Olga", of the St. Johns Shrimp Co. fleet; the "Robert Bruce", of the fleet of the Pacetti Fish Co., St. Augustine, Fla.; Capt. J. Lloyd Mickler of the Pacetti Fish Co. Boats powered with Caterpillar Diesel engines.

Dredge boats catching oysters off Jefferson Island, Md. Courtesy, Tilghman Packing Co., Tilghman, Md.

Virginia

Health Dept. Approves Floating Storage of Oysters

THE State Health Department will certify natural or "floating" storage for shellfish from September 1st through January 1, 1941, but after that time no assurance can be given watermen who use this method of keeping their catch.

This limitation was set last month by Dr. I. C. Riggin, State Health Commissioner, following a conference in Washington between fishermen and officials of the United States Health Service to determine whether "floating" storage met U. S. sanitary requirements.

The State Health Department will approve such storage pending the outcome of a Federal survey. However, no assurance can be given watermen who use the method after January 1, 1941, Dr. Riggin wrote G. Walter Mapp, Commissioner of Fisheries of Virginia.

In its survey, the Public Health Service will locate acceptable sites for the floats.

This decision represented a victory for a large delegation of Virginia State officials and oystermen who went to Washington to protest against a health service ruling prohibiting the future use of floats in public waters.

The hearing was arranged by Rep. S. Otis Bland of Newport News. Nearly 100 Eastern Shore oystermen and several Virginia legislators attended, in addition to Mapp and Dr. Riggin.

Floats are used for natural water storage of oysters where, through the ebb and flow of tides through the floats, sand and other foreign matter are removed from the oysters to improve their quality and "harden" them to withstand shipping.

Dr. J. W. Mountin of the U. S. Health Service, who received the Virginians' protests, announced the agreement to make further surveys of sites where the practice would be permitted. All areas recommended by the Virginia health authorities will be studied and those found equal to Health Service standards will be accepted.

The Eastern shoremen pointed out that Virginia oystermen have used floats in their business for the past 50 years; that their use is necessary to the conduct of their business; and that the proposed regulation would destroy the industry and the communities which depend upon it.

Maryland Seeks Better Oyster Market

The Maryland legislative council has received from its State Conservation Department a proposal for improving the markets for Maryland oysters.

Offered by Chairman Edwin Warfield, the program embodies a request for added authority, empowering the Conservation Department to establish areas for cultivation of large oysters, control of dredge boat licensing, and the planting of better seed stock.

Principal aim of the plan is to recapture markets lost to Maryland in recent years because of the scarcity of large or select oysters. "In the past ten years," Warfield told the council, "some 2,500,000 bushels of large oysters have been imported from other States."

He proposed that the Commission be given wider latitude in setting aside oyster areas in Chesapeake Bay and holding them out of use for sufficient time to grow large oysters. "Once the bigger sizes become available," he said, "they could supply not only the home market but the northern markets now supplied by Connecticut, New York, and New Jersey."

Undersized Crabs Caught

Fully developed adult blue crabs of unusually small size have been caught by crabbers throughout Tidewater sections of the State in unusual numbers this Summer, the Commission of Fisheries reported recently.

The stunted growth is attributed to the severity of the past Winter, which reduced the temperature of Chesapeake Bay waters and killed many forms of sea life.

Would Remove Oysters at Willoughby

Oyster planters have been notified by Federal officials at Norfolk that they should remove their stocks at Willoughby Bay to save them from being ruined by dredging operations now under way there, the Commission of Fisheries has reported.

The area is being deepened preliminary to the construction of a new air base near Willoughby. Such dredging operations are likely to ruin oysters in adjacent areas unless the bivalves are removed, it was pointed out.

Prytherch Returns from Rappahannock

Dr. H. F. Prytherch, U. S. Bureau of Fisheries' Biologist, who has been in charge of the State oyster survey in the Rappahannock River, left his headquarters at Urbanna late last month, following a week of consultation wth assistants there.

Dr. Prytherch has returned to Beaufort, to superintend laboratory work there, while his associates at Urbanna continue their survey in the Rappahannock.

The Rappahannock survey is being made at the order of the General Assembly. The work consists of taking plancton specimens, testing water and air temperatures and making regular inspections of receptacles placed in scattered parts of the river to catch oyster "spat" or seed.

The work is being carried on under the direction of the Virginia Commission of Fisheries.

Mussels Plant Prospering

The American Mussel Corporation, newly-chartered Virginia corporation, with plant at Wachapreague, and office at Baltimore, Maryland, has begun the preparation of mussel meat. The meat is sold to a large chemical company, which extracts valuable chemicals having a vitamin content.

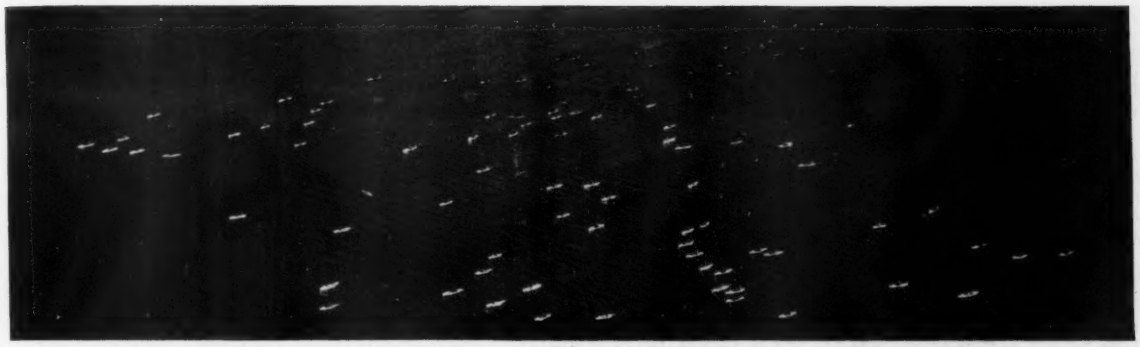
The extract is used in the preparation of medicine.

Plans are in progress for utilizing the shells. The plant, when operating at capacity, will expend approximately $1,000 a week for payroll and mussel purchases.

Flood Effects in Virginia

Rains that poured over Virginia for days without end during the latter part of August have done no material damage to the State's oyster crop.

Swollen mountain streams muddied the James River for days, making the water brackish and brown. However, the



Fleet of tonging boats catching oysters, near Tilghman's Island, Md. Courtesy, Tilghman Packing Co.

Maryland

Oyster Season Has Good Prospects

THE 1940-41 oyster season opened in the Maryland waters of the Chesapeake Bay on September 1st, in some sections, and on September 15th in other sections. Only tonged oysters are used until November 1st, when the dredging season begins.

Edgar Marine, seafood auditor of the Conservation Commission, who recently toured oyster areas, stated this year's oysters are in better condition than for several years past. He attributed this to the gradual increase in the planting of shells and to the transplanting of seed oysters.

During the past six years, the production of oysters has increased from 3,082,107 bushels in April, 1937 to 3,252,577 in April 1940. This increase was attributed in part to the 1,151,752 bushels of shells which were planted in 1936. 1,236,165 bushels of shells planted in 1937 caused the increase of 1939-40. A total of 472,596 bushels of oysters were transplanted from the sea area at the head of the bay to other areas this year.

The State Conservation Commission is determined to enforce the cull law on oysters this season. One of the chief causes for decline in the Chesapeake Bay area was the thousands of small oysters thrown on the shell heaps to rot.

Marumsco Bar, Crooked Creek Bar, and Watkins Bar have been closed until further notice, as they are being planted with shells and small stock.

Maryland has about 270,000 underwater acres classed as excellent oyster bottoms, and efficient "conservation farming" by private producers in other states show that good bottoms produce an average of one hundred bushels per acre a year. Assuming that only 200,000 acres were farmed in Maryland, the state could produce 20,000,000 bushels annually.

Data from Fish Scales

Scales provide valuable data on shad for use in formulating conservation laws. The Chesapeake Biological Laboratory at Solomons Island, by measuring the growth of scales, which depends upon such factors as food supply, salinity and temperature, can tell whether a fish was born in the Hudson River, off North Carolina or in Chesapeake Bay.

Maryland Discusses Rockfish

Maryland Conservation officials met last week at Solomon's Island to consider the Virginia Commission of Fisheries' proposal for a tri-state agreement to increase the legal limit on rockfish from 11 to 14 inches.

David Wallace, biologist at the Chesapeake Biological Laboratory on the Island, explained to the Marylanders that should the rockfish be permitted to grow three more inches in length, the catch would amount to twice as many pounds as formerly.

The Virginia Commission proposed several months ago that Maryland, Virginia, and North Carolina act simultaneously to raise the legal limit in the interest of conservation. North Carolina has not yet acted on the proposal.

Woman Captain Loses Boat

The schooner *Fannie Insley* owned by Miss D'Arcy Grant, known as "Cap'n Grant" and the only woman captain on the Chesapeake Bay, was dismasted and sunk on August 27th. Wilbur Willy was acting as captain.

The schooner was transporting oyster shells from Crisfield to Alexandria, Va., and while in the middle of the bay ran into a gale that broke the foremast, which pulled the mainmast down with it, causing the vessel to break up and sink.

Miss Grant had remained ashore, leaving Captain Willy in charge. She is a former newspaper writer and entered the freighting business on the Chesapeake because she likes sea life.

seed oyster beds in the River were unaffected. There might be a slight diminution in quantity but this should have a favorable influence on the market, which last year was depressed by overproduction.

Mussels have disappeared from the James River beds entirely. The parasitical shellfish, which cling to the oyster shells and interfere with their growth and value, were probably dispersed by the freshets.

Croakers and other salt-water fish were also driven out of the river temporarily, by the immense amounts of fresh water. They have now returned and large catches of rock and trout have been reported by pound net fishermen in the upper reaches of the James.

This schooner was bought by 5 young Americans, ranging in age from 22 to 27, bent on engaging in coastal trade in South America. Named the "Philosopher", this two-master was built in Maine in 1926, and is 71 ft. in length, with a 24½ ft. beam and a draft of only 5½ ft. She has a cargo capacity of 100 tons. Auxiliary power is furnished by two Buda-Lanova 90 hp. Diesel Marine engines, which swing 29" x 26" twin screws through 3 to 1 reduction gears, giving a boat speed of 8.9 mph.

Fulton Market Wholesale Prices

Species	Aug. 1-10	Aug. 11-17	Aug. 18-24	Aug. 25-31
Bluefish	.06-.25	.22-.30	.22-.32	.15-.28
Bonito	.01½-.03½	.01½-.03½	.01½-.05½	.03-.05
Butterfish	.03½-.11	.01-.05½	.02-.10	.01-.10
Codfish, steak	.04-.12	.04-.10	.05-.10	.06-.11
Codfish, market	.02-.06	.03½-.06	.03-.07½	.03½-.05
Croakers	.02-.04	.01-.04	.02-.05	.02-.05
Dabs	.. ..	.. ..	.. ..	.03-.04
Eels	.03-.10	.06-.12	.05-.12	.. ..
Flounders	.03-.15	.01-.12½	.01½-.11	.01-.12
Fluke	.07-.15	.07-.15	.07-.15	.06-.16
Haddock	.03-.06	.02½-.05	.02-.05	.02-.05
Hake	.02½-.04	.03-.05	.03½-.07	.02½-.06
Halibut	.12-.20	.14-.20	.16-.20	.14-.18
King Whiting	.02-.08	.02-.08	.02-.10	.03-.10
Mackerel	.01-.03	.01-.12½	.01½-.15	.01-.12
Mullet	.07-.08	.08-.08	.. ..	.08-.09
Pollock	.03-.05	.03-.04½	.03-.10	.02-.05
Pompano	.. ..	.40-.45	.. ..	.. ..
Salmon, Pacific	.15-.20	.17-.22	.18-.23	.16-.21
Salmon, Atlantic	.30-.30	.30-.30	.. ..	.. ..
Scup	.01-.04	.01-.02½	.02-.04	.02-.06
Sea Bass	.04-.18	.01½-.16	.02-.20	.04-.18
Sea Robins	.01-.01	.01-.01	.01-.02	.02-.02
Sea Trout, gray	.01½-.15	.02-.25	.02-.10	.03-.27
Silversides	.. ..	.50-1.00	1.75-1.75	.75-1.00
Skate	.. ..	.01-.01	.01-.02	.02-.02
Snapper, red	.14-.15	.20-.20	.. ..	.. ..
Sole, gray	.04½-.11	.05½-.08	.07-.08	.08-.10
Sole, lemon	.06½-.08	.12-.15	.10½-.15	.08-.12½
Striped Bass	.16-.23	.18-.23	.23-.35	.18-.28
Swordfish	.18-.30	.16-.22	.20-.27	.17-.18
Tautog	.. ..	.03-.03	.04-.04	.04-.04
Tuna	.02-.12	.04-.14	.09-.12	.10-.12
Whiting	.01-.04	.01-.05	.01½-.07	.01½-.04
Yellowtails	.02½-.07	.02-.06	.02-.06	.01-.06
Clams, hard	.75-3.00	.75-3.00	1.00-3.00	1.25-7.00
Clams, soft	1.00-3.00	1.25-2.50	1.25-3.00	1.00-3.00
Conchs	1.00-1.75	.75-1.50	.75-1.50	1.00-1.50
Crabs, hard	.75-3.00	.75-3.00	1.00-3.00	.75-3.00
Crabs, soft	.15-1.75	.15-1.50	.20-1.50	.20-1.00
Crabmeat	.20-.70	.30-.70	.30-.65	.15-.60
Lobsters	.22-.41	.24-.43	.20-.44	.22-.47
Mussels	.75-1.00	.75-3.00	.75-1.00	.75-1.00
Scallops, bay	.. ..	1.50-1.75	1.50-2.00	1.60-2.25
Scallops, sea	1.30-1.35	1.35-1.40	1.40-1.70	1.50-1.50
Shrimp	.05-.23	.11-.22	.04½-.19	.05-.12½
Squid	.01-½-.04	.01-.04½	.03-.08	.07-.07
Frogs Legs	.40-.55	.40-.50	.45-.60	.35-.55

Boy to Meet Girl

Two boys, winners of seafood cooking contests held by the Fishery Council, were sent off on a great time on the *Katie D.* and the *New Bedford*. Arrangements were made through Matt Graham of Chesebro, Robbins and Graham, Inc.

Three Boy Scouts, winners in another Council seafood contest, were sent to Maryland where they were guests of Governor O'Connor on a three-day fishing trip.

These seafood cooking contests have created a great deal of publicity for fish. They are conducted by the Council, which plans one for the Camp Fire Girls this Fall, and then one in which the winning Boy Scout will compete against the winning Camp Fire Girl.

A Bouncing Mackerel

A mackerel with a rubber band around its backbone was found at the J. H. Michaels Company. It's a bouncing good fish story.

Demand Good

After a week of storms, the Fulton Market turned to brisk trading right after Labor Day. Demand was good—almost too good for the supply. This marked the end of the Summer slump. However, the slump this year was not so long, for business held up right up to August.

Wilkisson Must Rest

Frank W. Wilkisson, veteran dealer and head of the firm which bears his name, has been forced to rest by advice of his doctor. Nothing serious, but Frank must take it easy. Among his activities is his work as President of the Fishery Council.

New Cook Book

A new seafood cook book which is offered free to the public has just been printed by the Fishery Council. Most of the material for the book was furnished by the Fish and Wildlife Service.

The new book was necessary because the 50,000 printed last year had been depleted by personally written requests as the result of radio, newspaper and magazine offers. One broadcast alone brought over 5,000 requests. One just a few weeks ago brought in 1,793 letters for the book.

The Council sends out the book free as part of its promotional campaign to get the public fish conscious and thus to buy more fish. The Council has a great deal of its publicity printed and broadcast over the entire country, and does not hesitate to send the free cook books outside its area, for the benefit of the entire industry.

Fulton Market Outing

Over 250 people had a great time at the second annual Fulton Market outing arranged for by Fishery Council. The affair was held at Bear Mountain Inn and was bigger and better than the successful outing conducted last year.

A baseball game in which the New Market and the Old Market battled to a 20-20 deadlock, a golf tournament for the Fish Forwarding Company cup, and many novelty games were features of the program. The huge crowd spent the evening dancing and dining.

The outing was designed to get those in the fish business together for one day of sport and fun. Henry Dusek, Chairman of the Outing Committee, was mainly responsible for the affair going over as well as it did. He was assisted by a very cooperative committee.

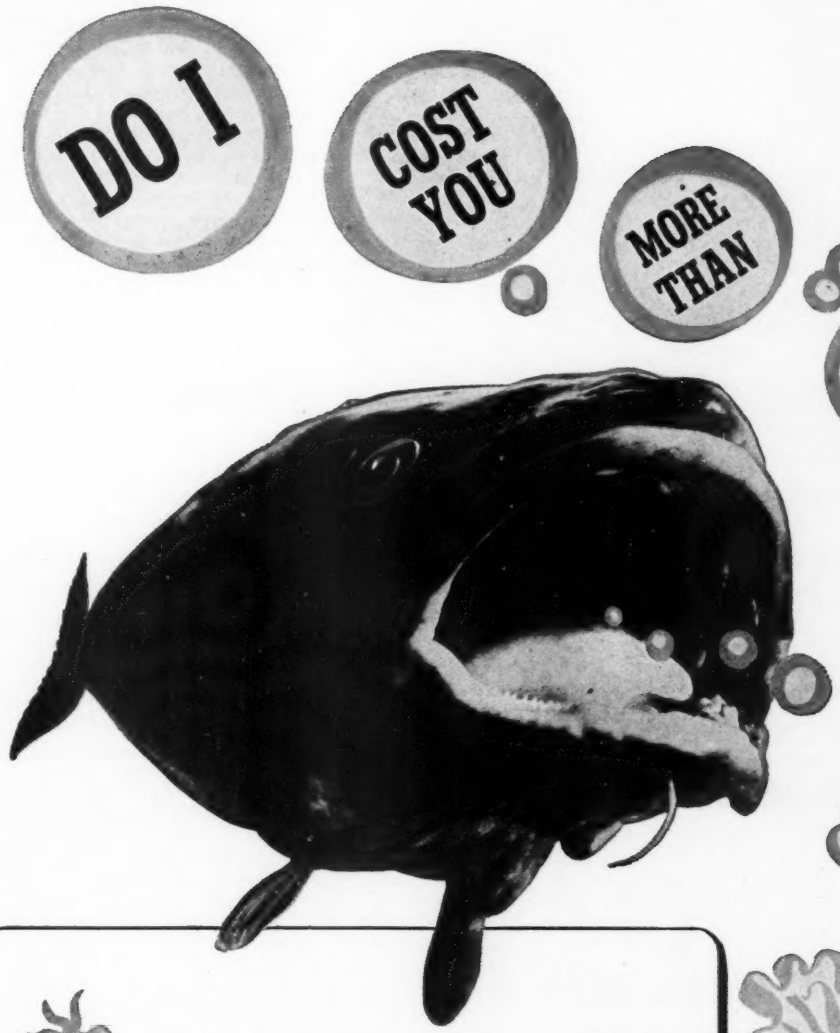
Joe Carter acted as master of ceremonies during the evening when the prizes were distributed. Cheever Lockwood was head of the baseball committee, and Dave Cornman supervised the golf tourny. Jimmy Liebl captained the New Market team, with Sonny Wilkisson in the same berth for the Old Market. Ralph Cohen won the Fish Forwarding Company Golf Cup while Louis Kurtz and Harry Weinstein captured other golf prizes.

Wisconsin Fishermen Face Trial

ALTHOUGH many Wisconsin commercial fishermen were of the opinion that the trial of offenders under the fish net mesh ruling would not get into court, due to the ruling having been postponed as to enforcement in some sections of the State, three fishermen from Two Rivers, on the shores of Lake Michigan some 90 miles north of Milwaukee, were bound over to the circuit court at Sheboygan on September 5th, for trial on charges of having used fish nets of illegal size of mesh. The men were released on $500 bonds. This is probably in the nature of a test case, to determine the legality of the ruling of the Wisconsin Conservation Commission, inasmuch as more than one hundred, said to have illegal size mesh, had been seized recently.

At the preliminary hearing of the Two Rivers fishermen at Sheboygan, two of the wardens who had seized the nets claimed illegal, measured the meshes in court, in an attempt to show that they were less than the legal two and one-half inch size. On the other hand, attorneys for the Two Rivers fishermen claimed in court that it had not been proven that the nets shown were the property of the defendants, and, besides, the nets shown were of legal size when used in water, shrinkage occurring when the nets had dried out.

As the court bound the men over for trial under bond, they will have to stand trial at some future date to be set later. Fishermen all over the state will watch the outcome of this trial, as many of them have been using the nets with mesh claimed to be of illegal size, thinking that the ruling would be modified or killed entirely in the future.



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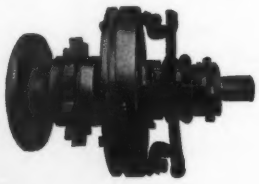

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Vessel Refrigeration

(Continued from page 8)

water and then brine, I advocate direct chilling in brine. The present trend in the brine boats is to dump the catches into chilled sea-water and leave them therein until the well is entirely filled with fish. Then the sea-water is pumped out and replaced with a brine at a lower temperature, and the fish are left therein. This procedure is all right *providing* the fish are not left in the 30 degrees to 35 degrees F. sea-water unduly long. Our own experiments have shown that tuna have reached or are rapidly approaching a border-line condition after three weeks in 30 degrees F. sea-water. At this temperature detrimental changes are taking place at a relatively rapid rate, and an unduly prolonged exposure to this temperature will inevitably defeat the object of subsequent storage at a lower temperature. Why not, therefore, chill directly in 20 degrees F. brine and transfer the fish (either the brine or the catch) to permanent storage after about 48 hours? Our own observations demonstrate that tuna chilled promptly in 20 degrees F. brine are in perfect condition after 48 hours. They are indistinguishable from freshly caught fish. The only drawbacks to this procedure are mechanical. The fishermen object to handling the fish unnecessarily, and they are faced with the alternative of transferring the brine to another chilling well, or transferring the chilled fish to a storage well. In the one case this involves the customary complicated set-up of brine lines, valves, etc., and in the other a slight additional amount of work in the second handling of the fish. On the *N. B. Scofield* all our catches (small, it is true) are dumped directly into a medium-meshed, heavy-twine, trawl sack suspended from the hatch coaming in the brine. The fish are left therein until chilled or needed, when they are easily removed.

Storage:

Providing, (1) that the catches are promptly and uniformly chilled, and (2) that the industry will accept 20 degrees F. as the upper, permissible storage temperature, then the problem of storage in the present fleet, under existing conditions (length of trip, etc.), is essentially solved. The mode of storage—in ice, brine, or "dry"—is a secondary consideration. The essential point is to completely separate the chilling from the storage compartments, with separate refrigerating circuits, and maintain in the latter a uniform and fairly constant temperature not exceeding 20 degrees F. The maintenance of a constant temperature in brine storage is very simple: in ice storage it is far more difficult and needs further experimental investigation; whereas in dry—air—storage it necessitates the transference of the heat leaking through decks, hatches and hull, etc., directly to the refrigerating coils before this heat gains access to the stored fish.

As each brine well was pumped dry, a fan was installed within the hatch coaming to produce a circulation of air within the well, in an attempt to equalize the temperatures throughout. From this experiment the following tentative conclusions are made.

1. Air circulation, such as provided in this experiment, materially helps to equalize air temperatures in the fish hold.
2. The beneficial effects are more pronounced—and more needed—at relatively high storage temperatures where the amount of refrigerant passing through the coils is barely sufficient to maintain the storage temperature—or where the refrigeration capacity is barely sufficient to carry the load.
3. At low storage temperatures, ca. 0 degrees F., the effects—and the desirability—of air circulation as a means of attaining uniformity are minimized.

If fish are to be frozen and stored dry, or in ice, this problem of the maintenance of a uniform temperature throughout the hold, or storage compartment, assumes considerable importance.

Editor's Note—While this article pertains specifically to operations on the Pacific Coast, there is much information applicable to fishing vessel refrigeration in general, which might be utilized in the East.

DEPEND ON

The oil tanker "Bertie", owned by Wm. C. Witt of Rock Hall, Md. The boat is 73.3 x 23.6 x 5.5, and is powered with a 4 cylinder, 4 cycle, 8½ x 12½, 100 hp. Wolverine Diesel engine.

WOLVERINE

For marine transportation service, in Maryland waters, and the waters of other coastal States, Wolverines are chosen because they are designed for the continuous duty required for this service.

Wolverine Diesel Engines are sturdy, simple, reliable, economical and long-lived.

Catalogue No. 135 Upon Request

WOLVERINE MOTOR WORKS, Inc.

Foot of Union Avenue BRIDGEPORT, CONN.

With the Vineyard Fishermen

By J. C. Allen

AUGUST hauls astern—a queer month, taking it full and by, with many good and indifferent things to log. Fish have run thick in these bearings all through the month. Of all common Summer varieties, sword has probably been most scarce. They were late showing up, and the weather has been almost too hot for even sword, close inshore where our small boats cruise.

Most of the fish taken have run to good size, and we haven't heard as much talk this year of jellies, as we usually do. This is good news, in one sense, although, from the point of view of a caplog oracle, it seems to us that there are usually most jellies when the fish run very plentiful.

Excellent Hand-Lining

Hand-line fishing has been excellent, and there are more boats engaged than we have seen for some years. The sand-sharks have played hell with bass fishing at times, but they always do. The gang likes to bait with small mackerel, when they fish for sea-bass, and all hands know well what a shark thinks about a chunk of stale mackerel. But they don't interfere to any extent when the gang tackle the scup, and it is no exaggeration to say that the scup have run heavy and the size have been unusual.

Plenty of Tinker Mackerel

With mackerel schooling offshore, scup schooling inshore, and striped bass running thicker than any man ever saw them in these waters, it would seem as if the trappers ought to have had a cut at the luck. But they didn't get the runs past their leaders for some reason. The mackerel have acted queer anyhow. Bullseyes showed up early, and there have been any amount of the smallest tinkers ever seen. Forty years ago, these three and four-inch tinkers were common, but for years nothing of the kind has been seen around here in any quantity. Now the water is alive with them, which may have brought the bass.

Heavy Trips of Fluke

Well, flukes have had one darned good spurt, that brought about the landing of some of the heaviest trips in years. The fact that the run was split seventy ways is nothing that anyone could help. The fish were taken and landed. It was a spurt, however, and petered out in a very short time, leaving the ocean as clean of flukes as an English pork shop on Saturday.

Other Species Plentiful

Blackbacks have run as well as common, and yellowtails have been more plentiful than usual. Receipts on all of these fish show an increase, even though a steam-boat strike here attracted any number of the sea-skimmers to freighting for several days. So you see—any liar can figure, but most of 'em don't, and the totals show more fish for August than for the corresponding month a year ago, and that, by Judas, is that!

Lobsters and Mussels

The lobsters appear to run shy of feed here; nothing else can account for the speed they make when they travel through our neck of ocean. The early fishing was better than usual by far, but the schoolers hit Vineyard Sound running wide open, and the fishing did not hold up. It might naturally be supposed that if there was a scarcity of natural feed, they would pot better, but we dunno. We have a feeling that the lobster likes his mussels darned well and that if there is a shortage of these mollusks, he doesn't stick around too consistently. In other words, we believe that a lobster wants a certain amount of mussels anyhow, just as mere man requires a slab of salt pork in his beans or something like that. Maybe this is all hooey, but the decline in the fisheries hereabouts came coincidently with the dying out of the mussels and even though the supply of lobsters has noticeably increased from what it was, they head away from here after a comparatively brief stop.

New Boats

New boats, new gear, and a movement of younger lads toward salt water discredits the theory that the fisheries are in any danger of dying out.

How Long it Lasts

When you sit down to figure out how much your rope costs, do you take into account how long it lasts? Most fishermen do; that's why our New Bedford Maritime Manila Fishermen's Rope is so popular. Made by our own process, it is water resisting and rot resisting. It stays pliable, and it splices and handles easily, whether wet or dry. Owing to its permanent lubrication, it resists wear, and is not easily affected by marine growths. Our customers have found from experience that it lasts longer. That's why we say "It's Economical".

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New Brunswick

Sardine Packers See Prospects for Good Fall Pack

By C. A. Dixon

ALTHOUGH August failed to produce a hoped for good run of sardines in southern New Brunswick, and many weirs at Deer Island and elsewhere remained unseined during the month, fishermen still hold that there is a possibility that Fall fishing will produce better results, as reports from the St. Andrews Bay region indicate that the small or tiny fish there, called brit, will grow large enough in a month or so to make oil sardines, and that these little herring will spread over wider fishing areas as the season advances. The fish so far, during the season of 1940, have been too large for sardine requirements all along the coast and at Grand Manan, in most cases; and even along the Maine coast as far west as Portland. Owing to the good demand for sardines, however, the factories have been canning the larger fish, as no other kind have been available except in certain localities where landings were naturally restricted as to quantity, such as the Saint John and Charlotte County mainland coastal regions. The demand has been steady and keen for anything in the form of a fish that could be cut so as to fit into the cans, but of course some fish, as always, have been of suitable size.

Big Demand for Vinegar-Cured Herring

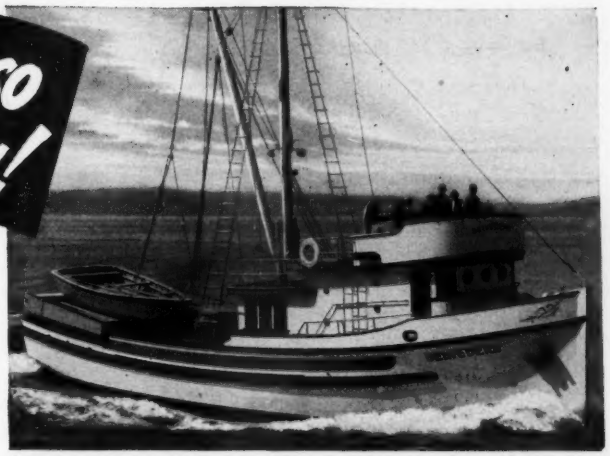
There is considerable interest in the fact that visiting business men from the United States to Grand Manan and other centers where large herring are caught, have stated that an unlimited demand for vinegar-cured herring exists, and that very large quantities of these fish are needed to even partially fill the orders which can be placed immediately in any district where such fish are procurable. Some of the business visitors found the supply of such fish in Quoddy and at Grand Manan insufficient to warrant the consummation of deals or the establishing of manufacturing plants in the territory, and moved on to Nova Scotia, where, they themselves, said that the presence of the large herring in good and steady fishing could ensure continuity of supply. Others may locate or offer inducements to already existing concerns at Grand Manan and other places in New Brunswick to undertake the manufacturing of the vinegar-cured fish on a large scale.

Opposition to Marketing Control of Boneless Herring

After the majority of the smoked herring producers at Grand Manan signed a petition in favor of having boneless herring brought under orderly marketing control, and the same was forwarded to the proper authorities at Fredericton, N. B., the people of Grand Manan Parish are, at the time of writing, awaiting the decision of the government or the New Brunswick Natural Products Control Board, in regard to the step taken. There is strong opposition by some of the manufacturers of boneless herring at Grand Manan, to the proposed scheme, and the claim has been made that such a move would ruin the industry. Those who favor it, however, who form a very large majority of the producers, say that marketing control of boneless which will eliminate cut-throat selling practices, will be the virtual salvation of the smoked herring business, which needs every safeguard that can be made at the present time to prevent chaos from developing in regard to various phases of the industry. Generally speaking, however, the people of Grand Manan seem to favor marketing control of boneless as well as that of the round fish, which control of the latter, leaders state, has been of great value to the industry, and has prevented the demoralization of the business since the local Marketing Board was established a few years ago. Prices particularly have been controlled with resultant benefit to all, they claim, and everyone has been given an absolutely square deal. True it is that there is a carry-over of 30,000 boxes of round fish (in August) but this represents a small carry-over as compared to other years in the past when it sometimes amounted to 80,000 or 100,000 boxes.

"Deficiency" Payments

It was recently revealed in the House of Commons, Ottawa, Canada, that "deficiency" payments to 15,268 persons amount-



"MOST RELIABLE"—*That's How Fishermen Classify F-M Diesels!*

The engine in a fishing boat must be reliable. That's why so many fishermen use Fairbanks-Morse Diesels. The "Belvedere" is powered with a 6-cylinder, 225-h.p. F-M Directly Reversible Marine Diesel Engine.

Regardless of what type of Diesel your boat requires for maximum efficiency and top performance—Fairbanks-Morse makes it. You make no compromise when you come to Diesel Headquarters! Fairbanks, Morse & Co., Department 6, 600 S. Michigan Avenue, Chicago, Illinois.

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"We are certainly sold on our Fairbanks-Morse engine, and we have never had any trouble with it. We have found it most reliable. We caught a total of 292 tons in a 24 hour period, which we believe sets some sort of record. With all that added strain, our Fairbanks-Morse engine never faltered once, and we are glad to recommend it to anyone."

Above are the words of Mr. Nino Riso, skipper and one of the owners of the purse seiner "Belvedere," which is powered by a Fairbanks-Morse Marine Diesel.

Vincent Bruno, Genaro Riso, and Jack Riso who, along with Skipper Nino Riso, are owners of the "Belvedere"

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F-M Diesels

Lunenburg Launches "Caroline Rose"

By H. R. Arenburg

A FINE schooner has been launched from the shipyards of Smith and Rhuland to be engaged in Lunenburg's fishing industry. The schooner was christened *Caroline Rose* by Mrs. Calvin Tanner, wife of the captain who will command this craft. The schooner is the first one which has been constructed in a Lunenburg shipyard since the start of the war and was built for the fishing firm of W. C. Smith and Company, Limited. She was built to replace Captain Tanner's former command, the schooner *Douglas and Robert*, which ran ashore near Lockeport and was dashed to pieces in a heavy gale in March of this year.

Another schooner in the Smith and Rhuland yards is nearing completion and a new keel is being laid in the berth which was occupied in the building of the *Caroline Rose*. The new schooner is being equipped by the staff of the Lunenburg Foundry Company, Limited, and will be ready to proceed to the fishing banks in about a month. The rigging is being done by the staff of Captain Paul Myra.

Salt Fishermen

A number of salt fishermen have returned from the fishing banks during the past month and have landed their catches and returned again to the banks. The salt fishing section of the Lunenburg fleet have been doing very well during the Summer season and fairly large quantities of fish have been landed. Among the schooners returning during the month are included the following:

Sch. *Ocean Maid*, Capt. Atwood Parks, 2500 quintals.
Sch. *Ethel Petite*, Capt. Evans, 2300 quintals.
Sch. *Isabel Corkum*, Capt. Fred Deal, 2000 quintals.
Sch. *Haligonian*, Capt. Daniel Mosher, 1800 quintals.
Sch. *John H. MacKay*, Capt. Moyle Crouse, 1800 quintals.
Sch. *Robert J. Knickle*, Capt. Gordon Mosher, 1700 quintals.
Sch. *Palatana*, Capt. Mills, 1400 quintals.
Sch. *Robert Esdale*, Capt. Miles, 1000 quintals.

Fresh Fisheries

The bulk of the schooners of the fleet are still operating in the salt fisheries and the fresh fishing landings have not been very great during the month. Among those schooners which have continued in the fresh fisheries and who have landed catches during the month are included the following:

Sch. *Marshall Frank*, Capt. Frank Risser, 330,000 pounds.
Sch. *Jean and Shirley*, Capt. Newman Wharton, 135,000 pounds
Sch. *Muriel Isabel*, Capt. Walter Crouse, 100,000 pounds.
Sch. *R. B. Bennett*, Capt. Elburne Demone, 100,000 pounds.

Several of the Lunenburg fishermen are operating fresh fishing out of Halifax and Lockeport. The schooner *Bluenose* is being equipped to go to the Banks, fresh fishing, and she will sail under the command of Captain Harry Demone, who formerly commanded the fishing schooner *Beatrice Beck*.

Shore Fisheries

The shore fisheries have been very slack during the past month, until recently, when the herring struck along the coast. These fish were extremely late this season but during the latter part of the month the run of herring was of very good size and quality. Tuna were not taken on the greater part of the coast until after the herring struck but are now being captured in large numbers.

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ing to a total of $445,000.00 were made in order to assist the salt fish industry of the Maritime Provinces, and Quebec province. The payments were made so as to increase to a "reasonable" amount of return to the fishermen from that received by the export producers. The payments were made to the various provinces affected as follows: Nova Scotia, 8,128 fishermen—$275,000; New Brunswick, 1,287 fishermen—$35,290; Prince Edward Island, 665 fishermen—$13,470; Quebec, 5,193 fishermen—$122,175.

Many a sturdy old ship that has outlived its usefulness still has the original Hyde Wheel in good condition. Hyde Wheels are made of metal that resists the action of salt water yet is so tough that it holds pitch. Hyde Wheels are guaranteed against breakage in service.

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RANGES

Tin Shortage Not Expected Here, Though Supply Comes from Abroad

AMERICAN producers of tin plate do not share the fears recently voiced in some circles that this country faces the possibility of a shortage of tin which might cause curtailment of tin plate consumption and force the use of substitutes, according to the American Iron and Steel Institute.

While no definite figures are available on aggregate stocks of tin held by members of the tin plate industry or in transit to them, leading producers are confident that the situation is comfortable. They foresee no important disturbing developments in the outlook.

That is the prevailing view despite recent events in the Far East which have cast a shadow over the future control of the Netherlands East Indies and French Indo-China. Both of these possessions have rich tin ore deposits, and they supply the United States with a substantial part of its tin.

The opinion is common that even if those colonial possessions were to pass out of control of the empires to which they now belong, the new rulers would be no less eager to sell tin. It is one of the most valuable metals of the world and gives any country controlling supplies of it an important foreign trade asset. The United States as a great market for tin is not likely to be overlooked by those who have it to sell.

The major use for tin plate is for the manufacture of tin cans for packing food and other products. Tin plate is produced by applying a coating of tin upon the flat rolled product of the steel industry, known as black plate.

Numerous suggestions have been made for possible ways by which the use of tin could be curtailed. One suggestion is for the use of a lighter coating of tin in the production of tin plate. Another is for the use of lacquer or enamel on black plate as a substitute for the coating of tin.

Both of these methods are regarded by many can manufacturers as unsatisfactory for all purposes, particularly the packing of food. Full protection is essential for packed food, especially if it remains in the can for a considerable period before being consumed. Such protection is uncertain with lighter coatings and is either impractical or too expensive with substitutes for tin.

Meanwhile, with the Government going ahead with its plan for purchasing 75,000 tons of tin for a national reserve, and with tin plate producers more confident of their ability to maintain their own respective supplies, any fears of a shortage of tin do not appear to be well founded.

Fairbanks, Morse & Co. will Construct New Brass Foundry

PLANS for a new non-ferreous metals foundry, at Fairbanks, Morse & Co., Beloit, Wis., announced by A. C. Howard, general manager, call for a building 80 feet by 220 feet with architectural lines closely resembling those of the pattern shop.

The new foundry, which will be located on the West side of the company property, filling the space between the pattern shop and North foundry, will be large enough to handle all of the non-ferreous metals production required in Fairbanks-Morse equipment. The capacity of the new foundry will be from two and a half to three times greater than the present non-ferreous foundry.

Farbanks, Morse & Co. turns out approximately 22 different standard alloys including brass, bronze, high brass, zinc and tin alloys.

In addition to having a larger melting capacity, the new foundry will contain the latest type of cleaning and sand-handling equipment, which will make it possible to produce the finest type of castings, both in appearance and quality. Core ovens of the most recent design will be used.

Special attention is being given to the solution of ventilating problems, the disposal of fumes from the foundry process, and to the comfort of the employees in the new foundry. The melting room will be closed off from the rest of the building, and adequate shower and locker rooms will be provided. A storage room for patterns will be located in the basement.

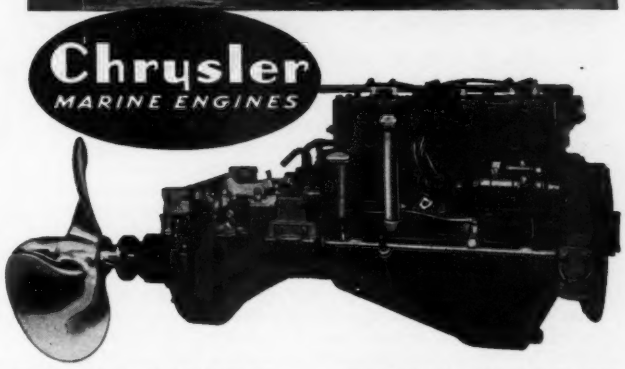
ANSWER TO A FISHERMAN'S PROBLEM

...a low cost engine that will turn a large wheel

THERE is no necessity for large, heavy, slow-turning engines in fishing boats or small work boats. Small, rugged engines equipped with reduction gears do a better job, cost less and use less fuel.

Chrysler Marine Engines are particularly designed to meet the fisherman's urgent need for a high-grade, efficient power plant for their heavy type boats. They offer progressive fishermen an opportunity they cannot afford to over-look. Results obtained during the past few years have convinced many successful fishermen that this type power plant is an answer to their problem.

★**The boat pictured is a 40′ x 12′ West Coast Fisherman. It is powered with one Crown Type "CR" engine with 3.46 reduction, which turns a 34″ x 25″ propeller 630 R.P.M. The Crown complete with reduction gear lists at only $775**



CHRYSLER CORPORATION • MARINE ENGINE DIVISION • DETROIT, MICHIGAN

Mack Announces Two Smaller "Mariner" Diesels

IN addition to its two Mariner engines of 519 cu. in. piston displacement, the Mack Manufacturing Corporation is now announcing production of two new smaller Mack Mariner Diesels of 405 cu. in. piston displacement designed for workboat and yacht installation.

While the two larger Mack Mariners develop 100 and 120 hp. for workboat and yacht respectively, these two new Mariner Diesels, having 4″ x 5⅜″ bore and stroke, develop 60 to 80 hp. for fishing and workboat service, and 100 hp. for yachts.

The Lanova system of combustion control consists primarily of a Figure 8-shaped combustion chamber, formed in the head, across the narrow throat of which are faced the injection nozzle and energy cell. The latter is a two-chambered cell which receives one-tenth of the air but nine-tenths of the fuel sprayed from the nozzle. It serves to promote active turbulence for clean combustion and rapid ignition, together with soft and prolonged combustion.

Injection is through non-clogging single orifice, closed pintle nozzles, at moderate pressure from a Bosch multiple-unit injection pump regulated by a centrifugal governor affording positive control of idling, running and maximum speeds, and affording positive prevention of racing.

Fuel is filtered through three filters of progressive fineness before reaching the injection pump.

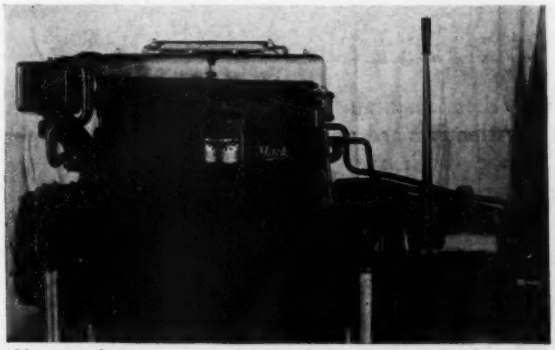
Full pressure lubrication is effected by an 8-gallon-per-minute gear pump placed in a submerged position, but supported by the upper crankcase, a built-in pressure regulator maintaining the pressure at 55 lbs. Delivery of oil from the pump is to a large oil gallery, water-cooled, and all oil passages throughout the engine are rifle-drilled in the iron, no oil lines or connections of any kind being used. Oil temperature is maintained by a built-in cooler.

Valves are operated by mushroom lifters, ball-and cup-ended push-rods and rocker-arms. Exhaust valves are of Stabl-ite. austenitic heads electrically welded to chrome-nickel stems, and intake valves are all chrome-nickel. Both have 30-degree faces. Springs are double concentric, wound on a graduated helix to eliminate flutter and at opposite hand. Large cup-shaped valve spring guides are used, upon which the rocker arms bear, thus relieving the stems of rocker-arm side-thrust. Permafit exhaust valve seat inserts of Niferrite are used, Stellite faced.

Connecting rods are long and their lower ends are split at a 35-degree angle to accommodate large crankpin journals and yet allow removal through the top. Operating in dry liners, the pistons are of aluminum alloy with T-slot skirts and carry five rings. Full-floating, the wristpins are hollow and retained by aluminum plugs with ends domed to the curvature of the bores.

Fresh water cooling is accomplished by the use of separate fresh and sea water pumps working in connection with a heat intercharger permanently installed at the forward end of the engine. Jacket water is circulated by a centrifugal pump with a bronze rotor and Monel Metal shaft. This pump draws water from the heat interchanger delivering it to a large cored water header which runs alongside the heads. From this header the water is delivered principally through ports which distribute it evenly about the valve seats, a smaller portion being ejected downwardly into the full-length water jackets.

From the cylinder heads the water escapes through an outlet



New Mack Mariner Diesel of 405 cu. in. piston displacement.

TANGLEFIN NETTING
"CATCHES MORE FISH"
LINEN & COTTON GILL NETTING
SEINE, POUND & TRAP NETTING
LUDLOW MANUFACTURING & SALES CO.,
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header through a thermostatic valve back to the heat interchanger expansion tank. When the engine is cold, however, the thermostat closes off this outlet so that no circulation exists in the block. Instead a by-pass from the pressure side of the pump is opened so that the water is by-passed directly back to the tank, thus relieving all back pressure from pump.

Sea water circulation starts at a water intake connection at the oil cooler, the outlet from the latter being connected to the gear-type sea water pump. This pump has two shafts and separate driving gears housed in a bath of oil fed from the engine. Its delivery is to the heat-interchanger from which the outlet is divided, part flowing through the water-cooled reduction gear and part through the water-jacketed exhaust manifold. The final escape from the manifold may be further divided between an overflow outboard and through the exhaust.

All auxiliaries are directly gear driven. Timing gears are upset end-grain drop-forgings, case-hardened and generator-ground.

Both of these new Mack Mariner Diesels may be obtained in either right-hand or left-hand rotation.

Mackay New Baltimore Service Station

THE Marine Division of the Mackay Radio and Telegraph Company has opened a new service station at Baltimore, Md. The new station is situated at 37 Customs House Ave. in the heart of the port's office district across from the U. S. Customs House. The personnel is headed by J. A. Richardi, Inspector in Charge.

According to W. V. Russ, Marine Superintendent of Mackay Radio, "The demands of expanding activities in this region of the Atlantic Seaboard and the rapidly growing importance of the Port of Baltimore, have necessitated further expansion of complete repair, maintenance and installation facilities at Baltimore for Mackay Radio. As to the installation factor," he says, "there are sixteen ships building in the yards at or near Baltimore which are to be equipped complete by Mackay Radio and the new office and personnel will aid considerably with these contracts. Furthermore, it will offer local and visiting ship owners Mackay Radio's new line of radio equipment, direction finders and the auto alarm."

Trawler Repairs
...By Bethlehem

View of Atlantic Yard, East Boston

Bethlehem maintains two modern ship-repair yards, the Atlantic Yard and the Simpson Yard, on Boston Harbor. Both have unexcelled facilities for the repairing and reconditioning of trawlers. In addition, Bethlehem's Fore River Yard is fully equipped to build modern Diesel fishing vessels.

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NEW YORK, N. Y.
Beyer Fish Co., Fulton Fish Market.
John Dais Co., Fulton Market.
Lester & Toner, Inc., Fulton Fish Market.
South Fish Co., 31 Fulton Fish Market.
Frank W. Wilkisson, Inc., 16 Fulton Market.
PHILADELPHIA, PA.
C. E. Warner Co., Inc., 8 Dock St. Fish Market.

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A COMPLETE LINE
20 Gasoline Models 4 to 125 H.P
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90 H. P.—110 H. P.—120 H. P.

EXTRA power for year in and year out performance under severest of conditions—that's the Red Wing Big Chief 6's. Engineered and built for larger type boats—these engines are the last word in dependability — operating economy and matchless performance. The logical power plant choice for larger type cruisers and commercial boat service. Full details gladly sent on request.

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IPSWICH, MASSACHUSETTS
Specialists in Fishing and Commercial Craft

HUTCH

Swordfish and Tuna Dart
Designed by a swordfisherman for swordfishermen

Completely streamlined. Kills quicker, goes through clean and toggles. Not stopped by bone. Unexcelled for swordfish, giant tuna, large sharks, blackfish, giant ray and turtles.

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HEMPSTEAD LONG ISLAND. N. Y.
Designers and Makers of Fine Harpoons—Made in Bronze and Monel. Write for Catalogue and Prices.
Patent Applied For

A Universal Official Completes Twenty-Five Years of Service

CHARLES J. Pope this month completed twenty-five years of service with Universal Motor Company of Oshkosh, Wisconsin.

Mr. Pope joined the Universal Company in September, 1915, when the company was being managed by Louis Monahan. In those days Universal was building the Model C Flexifour.

Since joining the Universal Motor Company, Mr. Pope has been connected with the Sales Department. For many years he was Domestic Sales Manager, but he later took charge of foreign sales and for a good many years has been Export Sales Manager. Because of his wide acquaintance throughout this country and his numerous contacts in handling foreign sales, Mr. Pope's friends are scattered to the four corners of the globe and speak many different languages.

In celebrating the occasion of Mr. Pope's twenty-five years of continuous service, Ralph G. Klieforth, President of Universal Motor Company, presented him with a gold watch in recognition of his long and faithful service. He also read and presented Mr. Pope with a copy of a resolution adopted by the Board of Directors of the company and placed on its permanent records acknowledging his unfailing service.

Lube Oil Cooling Bulletin

LUBRICATING Oil Cooler Bulletin No. 31 has been announced by Condenser Service & Engineering Co., 310 Twelfth St., Hoboken, N. J., and is available upon request. The bulletin is for engineers with lube oil cooling problems, and covers the use, design and cleaning of coolers, construction details, selection of size, heat transfer rate, capacities and pressure drop.

To Increase Use of Canned Salmon

A NEW 48-page recipe booklet for canned salmon dishes has just been issued by the Canned Salmon Industry. The booklet, measuring 3 by 5 inches, is designed to fit compactly into household recipe files. It contains recipes and illustrations for 41 salmon dishes, 21 of the illustrations being in full color.

The booklet is designed to increase the use of canned salmon by showing housewives many new attractive ways of preparing and serving this product. In addition to recipes, it presents considerable data on the food values of canned salmon, together with helpful data on can sizes and number of servings, and the various species of salmon and their characteristics.

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Shrimp Boat

A shrimp boat 55 to 60 ft. long, 16 to 17 ft. width, drawing 5½ to 6½ ft. 125 hp. Diesel. Must be in excellent condition. Quote lowest cash price. Address P.O. Box 773, New Orleans, Louisiana.

Fishing Schooner

60 to 100 ft. Auxiliary engine, sails and hull must be in fair condition and in commission and ready to sail. Age no objection. Send full details. Will return photos. Box ESC, *Atlantic Fisherman*, Goffstown, N. H.

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FOR SALE

F-M and Superior Diesels

4 cylinder, 40 hp. Fairbanks-Morse Diesel; 4 cylinder, 45 hp. Fairbanks-Morse Diesel. Both Model 34, second hand; either one $200 F.O.B. Boston. 4 cylinder, 60 hp., Model MA4 Superior Diesel, reverse gear, second hand, $450. Rapp-Huckins Co., Inc., 138 Beverly St., Boston, Mass.

Schooner Mainsail

60 ft. boom, 41 ft. hoist, and 34 ft. 6″ gaff. Frank F. Upson, Sail Maker, New Haven, Conn.

Used Bolinders Diesels

Type W7, one 50 H.P. W7M25, one 100 H.P. W7M45. Completely rebuilt, in first class condition. Bolinders Company, Inc., 33 Rector Street, New York City.

Boat

Boat *Subojay* built by F. D. Winchenbaugh. Length 38.9, beam 9, depth 3½. Two years old. Small lobster well. Universal engine 90 hp. Will sell at great sacrifice. Apply to Ernest J. Burns, Friendship, Maine.

Lathrop Engine

Lathrop, heavy duty, 4 cylinder, 75 hp. Brand new. Run less than 10 hours. $950 for quick deal. Cost over $1600. Write or wire Marine Engine Division, Mack Mfg. Co., Long Island City, N. Y.

Oyster Schooner

88′ x 22′ x 7′, built in 1928, very rugged, in fine shape, 4½ alley way. Address O. S., care of *Atlantic Fisherman*, Goffstown, N. H.

Atlas Engine

One 80 hp. Atlas Imperial engine in good condition. Price reasonable. Address Hathaway Machinery Co., Fairhaven, Mass.

Dragger

Boat E-C, 48 ft. x 13½ ft. x 5½ ft. Has a 60 hp. Atlas engine. Complete for dragging. Write James Beebe, 152 Church Ave., Islip, Long Island, New York.

"Diesel Monitor"

A new book, entirely in the form of over 3,000 questions and answers, 530 pages, size 5″ x 7″, profusely illustrated, price $5.00, prepaid. This new book by the well known author, Julius Rosbloom, is considered to be the most valuable book yet created for Diesel engineers. A complete course on Diesel engineering. All license laws are covered in this book, including rules for small craft marine licenses. Obtainable from Atlantic Fisherman, Goffstown, N. H.